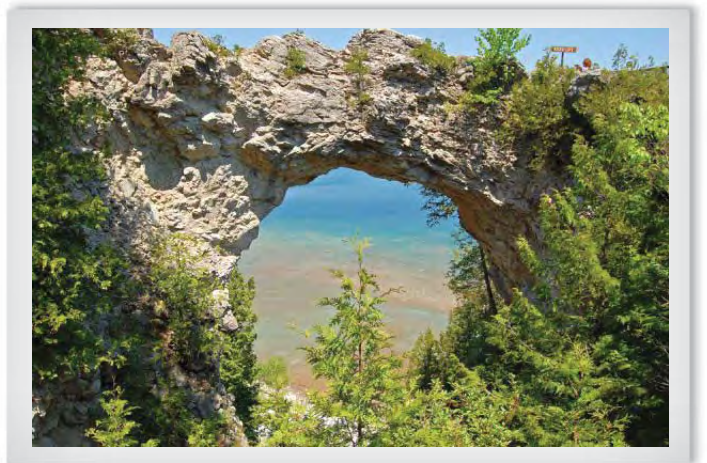
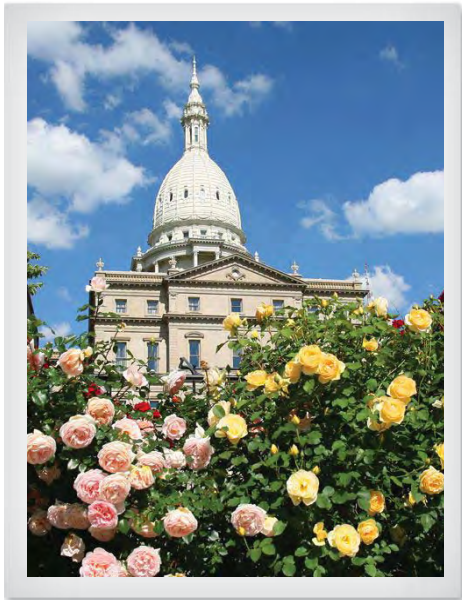


State of Michigan | ICT Strategic Plan 2010-2014

from vision to action



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Treasury

Technology Leadership



Kenneth D. Theis
State of Michigan CIO



Phyllis Mellon
Chief Deputy Director

Michigan Information Technology Executive Council

It is with great pleasure that we present to you Michigan's 2010-2014 statewide information, communications and technology (ICT) strategic plan.

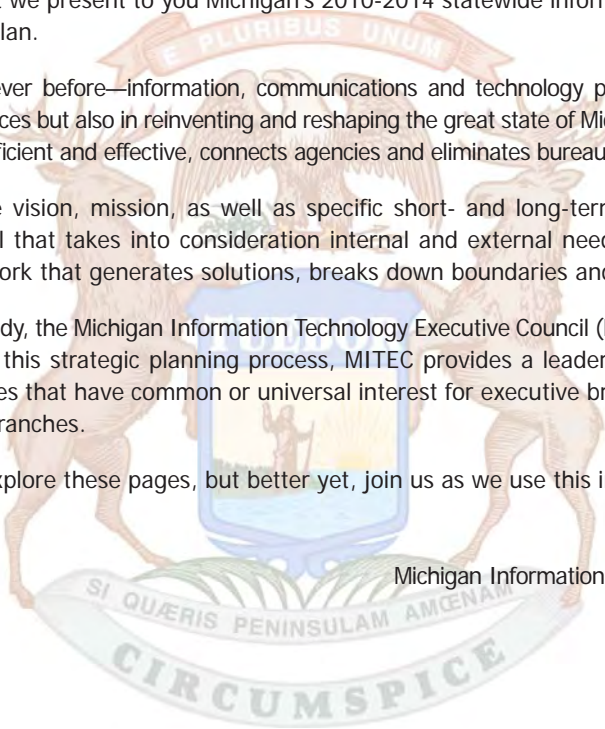
Today—perhaps more than ever before—information, communications and technology play a critical role in both the delivery of governmental services but also in reinventing and reshaping the great state of Michigan. ICT helps us find ways to make government more efficient and effective, connects agencies and eliminates bureaucratic obstacles.

This document lays out the vision, mission, as well as specific short- and long-term initiatives and targets for Michigan. It is a critical tool that takes into consideration internal and external needs and opportunities. And it serves as a unifying framework that generates solutions, breaks down boundaries and enables partnerships.

As Michigan's ICT advisory body, the Michigan Information Technology Executive Council (MITEC) provides an end-user and agency perspective. In this strategic planning process, MITEC provides a leadership forum and governance structure for discussing issues that have common or universal interest for executive branch agencies as well as for the legislative and judicial branches.

Together we invite you to explore these pages, but better yet, join us as we use this information as a springboard into Michigan's future.

Michigan Information Technology Executive Council



The Michigan State Seal is centered in the background of the page. It features a shield with a landscape scene, flanked by two figures. Above the shield is a banner with the motto "E PLURIBUS UNUM". Below the shield is a banner with the motto "SI QUÆRIS PENINSULAM AMENAM CIRCUMSPICE".

Rose Wilson	Alan R. Potts
Connie Roblee	Lynn M. Draschel
Greg M. Lohr	Kevin J. Ford
Nellie Green	Chad Well
Michael J. Moody	Leon S. Hank
David Zaleski	Frank J. Garcia
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Walt Bader	Carol Z. Wolterberg
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Cheryl Schmitt	



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vision to action



“Strong partnerships and a thorough understanding of business needs are critical. Together with state agencies, citizens, businesses and other partners, we are planning, streamlining and restructuring. We have an unprecedented opportunity to transform government.”

Kenneth D. Theis
State of Michigan CIO

This marks Michigan’s first-ever statewide information, communications and technology (ICT) plan. Why the change in focus from information technology (IT) to ICT? Simply this: It wraps in access, telecommunications and communication networks in ways that have not been incorporated previously. It also highlights the evolving roles of information, smart computing and measurement. This shift in focus is preparing the State and its partners to expand participation in this rapidly changing field that is impacting our work, our play and the economy in which we all take part.

While Michigan’s ICT opportunities are transformative, they are tempered by budget and workforce constraints as well as the unknowns involved in an impending change in the administration (with the 2010 elections on the horizon). These factors have caused some to ask whether the timing is right for an update to the strategic plan. Are there too many unanswered questions? Too many unknowns? Absolutely not! This is no time for “business as usual.”

Through ICT planning and action, the Michigan Department of Technology, Management & Budget (DTMB) is enabling government to do the right things with fewer resources. Strong partnerships and a thorough understanding of business needs are critical. Together with state agencies, citizens, businesses and other partners, we are planning, streamlining and restructuring. We have an unprecedented opportunity to transform government.

Getting the most out of ICT for Michigan means making tough decisions and taking ownership of projects at the point of initiation. Through this, we are realizing the benefits of shared services and cross-departmental and cross-boundary partnerships.

Areas of action range from health IT and mobile computing to economic development and cloud computing. We are delving into enterprise performance management (metrics and measures) to enable data-driven decision-making and enhanced transparency. We are strategically aligning the organization for real-time situational and automated analysis to solve ingrained and complex issues. We continue the aggressive modernization of legacy systems and our mantra of enabling citizens to conduct business online rather than in line.

Safe, secure and accessible networks and systems are foundational underpinnings. In our aggressive pursuit to stay one step ahead of threats, we are the first state to partner with the U.S. Department of Homeland Security to enhance our security posture, implementing a new service (Einstein) and using technology to analyze Internet traffic and proactively detect malicious activity.

This ICT strategic plan is essential in keeping us moving forward together. We look forward to working with you—today and for years to come—to bring these plans to fruition.

ICT Management in Michigan



Michigan’s ICT management approach incorporates people, process and technology.

executive summary

building on the foundation

Michigan's ICT strategic plan is sponsored and governed by the state's Department of Technology, Management & Budget. Executive Order 2009-55 consolidated the Departments of Management and Budget (DMB) and Information Technology (MDIT) into one agency. Business and citizen services, include:

- the State's complete contract portfolio;
- ICT services that include: assisting citizens when they file income tax returns, pay or receive child support, compare school districts, start a business, vote or seek help in many other areas.

Services to state agencies and employees include:

- procurement, printing, mailing, fleet management and delivery services;
- oversight of four retirement plans that serve one in 18 Michigan citizens;
- management of technology systems with more than 800 critical business applications and 56,000 desktop computers;
- management of state facilities, leases, construction services and warehousing.

With a cabinet-level chief information officer (CIO) who also serves as the department director, DTMB plays a key role in executive-level planning. The department leads the alignment of ICT strategy and action with the businesses needs of agencies and the citizens and businesses served.

Building on eight years of IT/ICT consolidation and three statewide strategic plans, Michigan has navigated from an agency-specific, organization with a narrow focus to a silo-busting enterprise-minded agency. Looking ahead, DTMB is aligned for cross-boundary and shared services, addressing Michigan's most pressing problems and opportunities.



"We've also leveraged technology to make state services less costly and easier for people to access. We have created a 24-7 government, continually streamlining business processes and cutting regulations and redundancies, making it easier for everyday citizens to find help."

Governor Jennifer M. Granholm
2010 Budget Address

Yesterday	Today	Tomorrow
<ul style="list-style-type: none"> • Over 40 Data Centers • More than 40 e-mail Systems and 700 Servers • Disparate Desktop Computer Environment • Disparate ICT across 19 Agencies • Security Threats without Coordinated Defense • Inefficient Eligibility and Medicaid Systems • Confusing Business and Citizen Assistance 	<ul style="list-style-type: none"> • 3 Secured Data Centers • 2 e-mail Systems and 70 Servers • Standardized Desktop Environment • 1 ICT Operation Spanning State Government • Unified Security with National Recognition • New Generation Bridges and CHAMPS • Streamlined One-stop User-intuitive Portals 	<ul style="list-style-type: none"> • Shared Hosting Center • Unified Communications and Social Networks • Mobile Computing and Hotelling Partnerships • Intergovernmental Shared Services • Proactive Federal/State and Local Partnerships • Automation of Forms, Licenses and Transactions • Smart Solution Awareness and Analysis

the planning process

State of Michigan Cabinet Priorities



Creating Jobs through Diversification

Continuing efforts to remake Michigan's economy



Creating a Well-Educated, Highly Trained Workforce

Doubling the number of college graduates and giving every person the tools for success in the 21st century economy



Protecting Michigan's Citizens

Safeguarding the physical and financial well-being of every Michigan resident —particularly our most vulnerable citizens



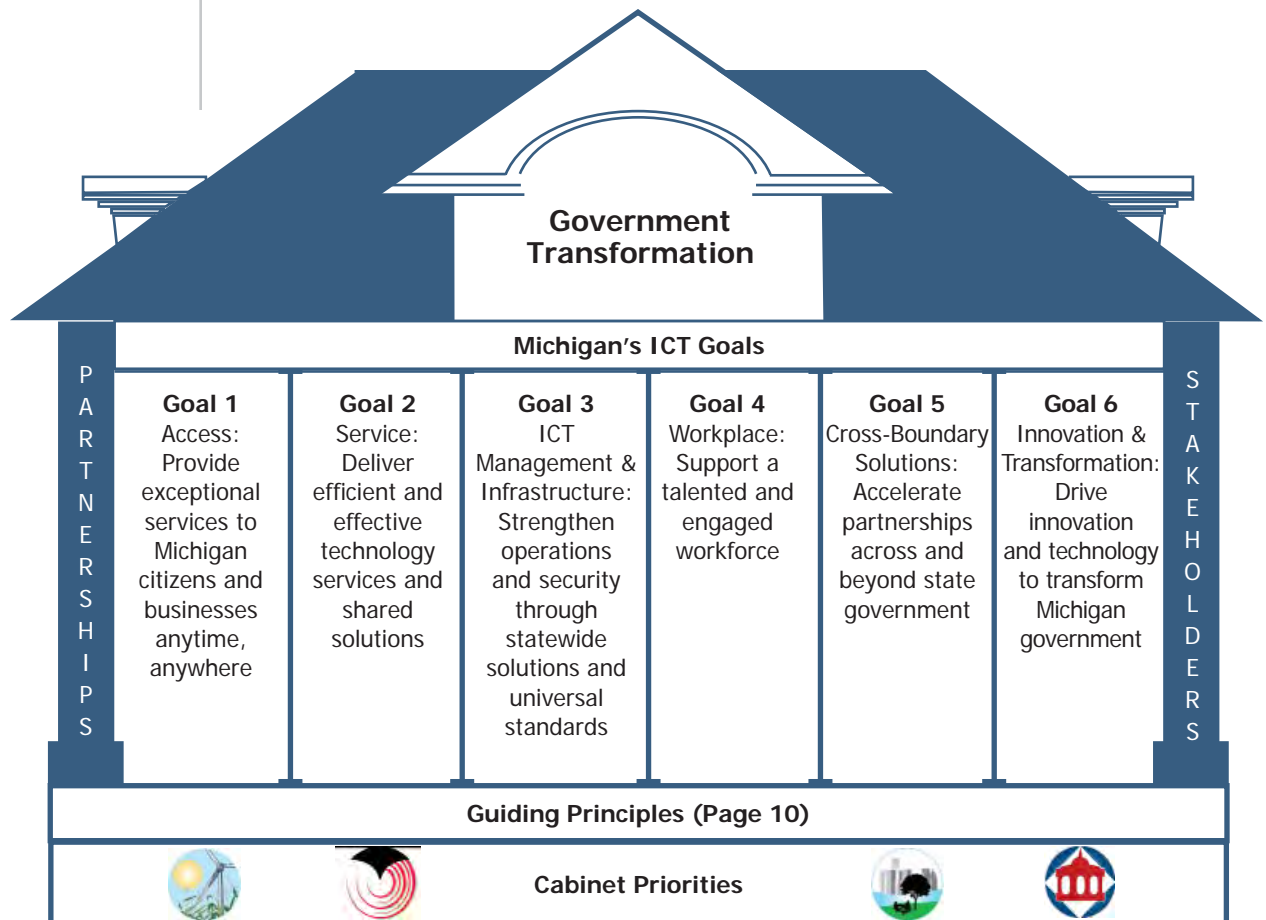
Better Government

Making government more cost effective and efficient

Michigan's ICT strategic plan is developed in partnership with state agencies and citizens. It relies on national best practices in information, communications and technology (ICT). Activities leading to the publication of this plan include:

- planning sessions and surveys with the Michigan Information Technology Executive Council (MITEC), an advisory board of state department leaders.
- in-depth participation in and review of leading ICT issues, trends and analyses.
- strategic planning retreats, discussions and surveys with Michigan's ICT staff and leadership.
- engagement with Michigan citizens and students on preferences and needs.
- alignment of tools and solutions to statewide cabinet-level priorities.
- discussions and feedback from leading researchers.
- issue assessments, service and functional plans, which are discussed in the plan's appendices.

Across the five-year planning cycle, regular updates and adjustments to the plan are made, along with reports on progress to stakeholders. In this way, Michigan's ICT operations enable and move government service forward.



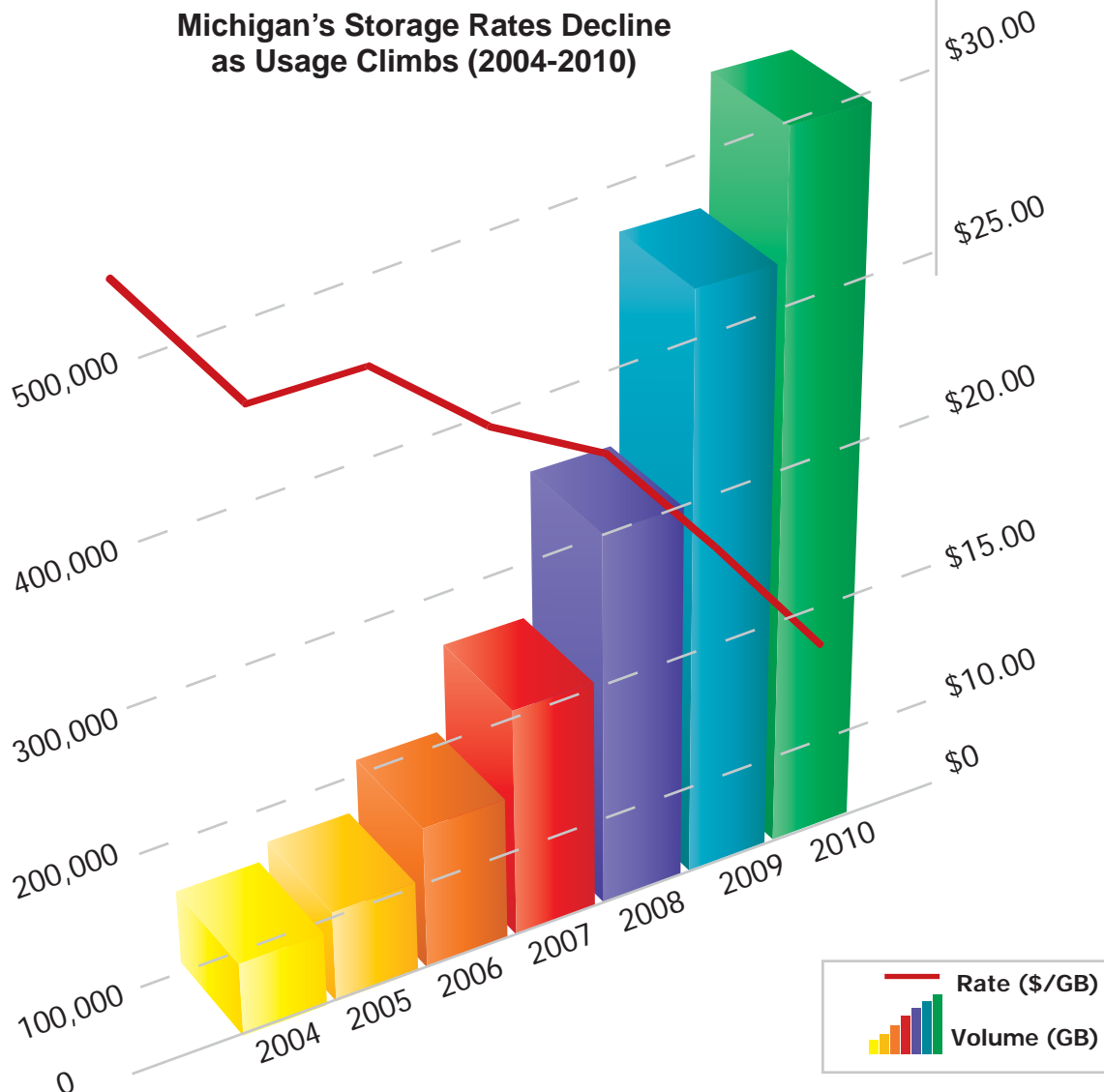
the funding imperative

Throughout the fiscal year, DTMB forecasts and tracks ICT-related budget items. In partnership with its state-agency clients, DTMB is optimizing business value for Michigan citizens, ensuring that taxpayer dollars spent on technology today produce an optimal return on investment tomorrow. MITEC and the Agency Operation Partnership Team (A-OPT) both provide input and feedback to support the budgeting process.

Over the years, the budgeting process has been improved and refined through service level agreements with agencies as well as the establishment of a statewide service catalog. Last year, a new agency-focused call for projects process captured a two-year horizon of projects and enabled a meaningful prioritization process. This process will be repeated and refined annually.

By striving for a precise balance of internal- and customer-directed investments, Michigan's enterprise ICT portfolio governance and management model has increased productivity, organizational agility and assurance that desired outcomes will be met. Looking ahead to the 2012 budget cycle, DTMB is developing ways to enhance the budget-planning process and explore an enterprise funding model for ICT projects across the agencies.

Technology standardization, service enhancements, operational innovation and increasing demand allow DTMB regularly to reduce enterprise rates charged to client agencies. The illustration below shows a leading example of this trend.



guiding principles: 2010-2014



Mission

Transforming the way government operates, delivering innovative information, communications and technology solutions with excellence and integrity

Vision

A connected Michigan, where access is just a click away, with secure streamlined services that actively engage Michigan's citizens and businesses

The illustration on page eight shows how Michigan's guiding principles drive the priority-setting process for the 2010-2014 ICT strategic plan and align with cabinet priorities. Benefiting from a consolidated Department of Technology, Management & Budget, Michigan's plan is built on the following principles:

- Effective and efficient customer-based operations and services: Continue optimizing core service delivery, facilitating and simplifying access to government, improving efficiencies that support greening, while reducing costs.
- Performance management, accountability and public value: Ensure public value through alignment among state policies, citizen service and agency business needs and ensure accountability and high performance service delivery through best-practice performance management.
- Privacy, transparency, security and public trust: Ensure public trust by providing optimal levels of security, open government, citizen privacy, disaster avoidance and mitigation.
- Well-supported and engaged workforce: Develop and maintain a high-performance workforce and workplace capable of supporting current service needs and meeting future requirements.
- Agile management and infrastructure: Deliver fundamental process, service delivery and infrastructure changes as they are needed.
- Shared solutions, standards and flexible, open boundaries: Maximize sharing solutions, services and infrastructure within the enterprise, other levels of government and the private sector, moving toward compatible shared standards.
- Maturation and modernization solutions: Ensure sustained modernization of a comprehensive range of solutions and technologies with transformational or high-performance potential that are suitable for connecting tiers of government and the public and private sectors as well as improving performance and customer service.
- ICT innovation and transformation: Develop an expectation, culture and capacity for innovation and transformation of government. Shift from a role of supporting and enabling ICT in service and business processes to a driving role, providing leadership and serving as a catalyst in business process and organizational change. Leverage the state's ICT organization for economic growth and diversification. Align the organization for success in information management and smart computing awareness, analysis and related solutions.



More detail regarding specific action steps and initiatives related to the guiding principles can be found on pages 27 and 28.



goals and initiatives: 2010-2014

Building on the guiding principles, Michigan's strategic goal foundation has been enhanced to identify and address challenges and opportunities. In the table below, guiding principles have been cross-walked with Michigan's six strategic goal areas. The circular symbols indicate whether the related goal areas are driving (filled circle) or enabling (half circle) the related guiding principle.

Guiding Principles	Goals	1 Access	2 Service	3 Management	4 Workforce	5 Cross Boundary	6 Innovation & Transformation
	Effective & Efficient Customer-based Operations & Service	●	●	◐	◐		
	Performance Mgt., Accountability & Public Value		●	◐			●
	Privacy, Transparency, Security & Public Trust	◐		●		◐	
	Well-Supported & Engaged Workforce	◐	◐	◐	●	◐	◐
	Agile Management & Infrastructure			●			◐
	Shared Solutions, Standards & Flexible, Open Boundaries	◐	●	●	◐	●	◐
	Maturation & Modernization Solutions		●	●	◐		●
	ICT Innovation & Transformation	◐	◐	◐	◐	◐	●

 Driving the activity
  Enabling the activity

On the pages that follow, an overview of each 2010-2014 goal area and representative activities planned are provided. Selected progress to date and initiatives in motion within each goal area are highlighted as key priorities.

Access

Provide exceptional services to Michigan citizens and businesses anytime, anywhere

Strategies

- Maintain modern best-practice and optimized access solutions and technologies.
- Provide service, information and open-government capabilities, enhancing transparency, accountability, interaction, collaboration and engagement.
- Employ integration and one-stop solutions that provide seamless cross-boundary access for partners, including citizens, businesses and other governmental entities.
- Provide personalized new-media services, including social computing networking and mobile platforms.

Progress to Date

Michigan Business One-Stop

- ✓ This online service streamlines and bundles state processes, which businesses can access as a “one stop” shop. Business owners can use this portal to start and register a business, apply for licenses and permits and pay fees—entirely online.

Unemployment Services

- ✓ When Michigan unemployment claims spiked from 2008 through early 2010, the state responded with technology to enhance service delivery and ease the burdens that so many families faced. Users can create a secure Web account to access benefit information, status and update account information. From January 2009 to March 2010, usage jumped from 2,594 to 92,934.

Michigan.Gov Refresh

- ✓ Based on user feedback, Michigan's public Web site is regularly updated to enhance its accessibility and ease of use. Following the 2010 refresh, visitors could access five times more content from a streamlined home page. New online and high-demand mobile services also were added to the portal. The upgrade positions Michigan for key recognition in the Center for Digital Government's annual Best of the Web competition, which is currently underway.



proof positive

Helping Hand Portal

This site provides Michigan citizens facing economic hardship with one online location for human services help and information. Available through the Michigan.gov portal, users simply click on one of five tabs for links to information on jobs and training, unemployment benefits, health care, family support and housing. In its first week of operation, 1,800 applications for food assistance were submitted through the site. Since then, the site regularly draws more than 50,000 visits per month and provides life-enhancing services to Michigan's citizens.

miAccount Retirement Service

- ✓ DTMB's Office of Retirement Services administers four retirement systems that serve one in 18 Michigan citizens. To serve customers better, we created miAccount, which allows members to conduct retirement transactions online. By logging on to the online service, Defined Benefit members can perform many transactions such as updating personal contact information, viewing pension payment details and changing federal tax withholding.

Access

Provide exceptional services
to Michigan citizens and
businesses anytime, anywhere

Initiatives in Motion*

Expansion of Data Sharing

- Michigan has launched its consolidated data-sharing site, www.michigan.gov/data, and linked it to the federal data repository, data.gov. Michigan was among the first states to link with the federal resource. Now one of eight state participants, Michigan continues to expand its presence.



Social Networking Service

- Today, 48 percent of Americans age 12 and older participate in at least one social network. The State of Michigan has aligned itself to take advantage of new social networking channels to engage citizens, businesses and partners as well as related cost and service benefits. DTMB is working with agencies to determine appropriate uses and implementation strategies for participating in and providing online communities. The Michigan Energy Efficiency Network in partnership with the Department of Energy, Labor and Economic Growth (DELEG) is one such project that is currently underway.



Michigan College Access Network (MiCAN)

- This one-stop Web resource provides parents, educators and students with Michigan college information. Upon full implementation, it will link users with information on careers, schools, test preparation, scholarship opportunities and streamlined admission to Michigan's colleges and universities.



Parolee Self-Service Check-in Kiosks

- These self-service tools will help parole staff streamline processes for working with low-risk offenders, allowing them to focus on management of higher risk cases. The kiosks will include the means for biometric technology that uses finger and thumb scans to authenticate identity.



Mobile Access for Workers and Citizens

- Mobility is a priority area in terms of providing access and service and promoting a great workplace for state employees. Expanded mobile worker access through telecommuting, shared service centers and enhanced mobile device services is central to Michigan's mobility strategy and road map. Details are available in Appendix C, Technology Solutions.



exploring technology solutions

Streamlined Citizen Transaction and Self-Service

As Michigan citizens use more advanced technology to perform a range of tasks, their expectations continue to rise. More than ever, citizens demand that government provide convenient, cost-effective and secure services around the clock. Tomorrow's technology will focus on expanding accessibility to government services. Looking forward, Michigan will emphasize single points of access to government services through multiple channels and continue the commitment to making e-government services faster and easier to use.

tools and solutions

Enabling Access

- Citizen interaction/Web 2.0/social computing
- Improved search functionality
- Government accountability Web site
- Citizen self-service kiosks
- Real-time traffic mapping
- Automatic text-message alerts
- Integrated data capability
- Accommodate consumerization of IT

*Appendix Resources:

Initiatives - A • Targets - B • Associated Technologies - C

Service

Deliver efficient and effective technology services and shared solutions

Strategies

- Increase effectiveness and efficiencies through innovative use of solutions and technologies.
- Enhance responsiveness and accountability to our customers.
- Maximize the value of ICT investments, realize savings and avoid costs.

Progress to Date

Bridges: The New Human Services Eligibility System

- ✓ Bridges, a landmark human services project, reduces administrative workload by replacing three outdated human services systems with one comprehensive system. Bridges, which integrates information from other state, federal and private systems, improves accuracy, reduces error rates and enables caseworkers to complete multiple tasks more easily. The system is used to open new cases, update information and redetermine eligibility.

Student Data System

- ✓ This system collects enrollment, exit data and program information on all students in K-12 and higher education. The information is used for state aid payments, graduation and dropout rate calculations as well as state/federal reporting.

State Aid Payment System

- ✓ The new State Aid Payment System processes state aid grant payments for Michigan's school districts. The improved system offers several new features, improving efficiency and offering a higher level of customer service.

Medicaid Management Information System Upgrade

- ✓ This modern-day technology replaces a 30-year-old Medicaid claims processing system. Entitled the Community Health Automated Medicaid Processing System (CHAMPS), this upgraded system meets modern federal and state needs with features that allow providers to view claim status and update records online. More than 40,000 medical providers are registered, with 4,000 providers accessing it daily. CHAMPS issues an average \$375 million in payments weekly, with 250,000 claims processed daily.



proof positive

Food Stamp Direct Certification Program

This program cross-references food stamp eligibility data with Michigan's 1.9 million student records. Upon initial implementation, 363,039 Michigan school children were identified and registered for free school meals.

"This technology means many students identified will not be hungry at school," said Ismael Ahmed, director of the Michigan Department of Human Services.

Michigan Integrated Tax Administration System (MIITAS)

- ✓ The new MIITAS system supports the Michigan Business Tax (MBT) and provides a solution to collecting and processing the MBT. From registration to the collection of accounts receivable, MIITAS delivers a framework for integrating the administration and enforcement of business and individual taxes. It also provides greater flexibility for implementing new tax policies, secures efficiencies in processing, enables views across tax types, and uncovers missing or erroneous tax submissions.

Service

Deliver efficient and effective technology services and shared solutions

Initiatives in Motion*

Eligibility Information Sharing

- In the summer of 2010, the Bridges application will be capable of sharing data with DCH's Medicaid system. It will enable automatic determination of eligibility for children's health care.



Child Welfare System Modernization

- Michigan's aging Child Welfare Information System is in the queue for replacement. A modern, integrated system will replace multiple child welfare tracking, reporting and financial systems. It will provide Web access to child placement agencies for out-of-home care reporting and allow field workers to use mobile technology to update case files.



Unemployment Insurance Modernization

- This multi-year integration project includes a comprehensive and complex rewrite of Michigan's Unemployment Insurance (UI) system. It will enable real-time data sharing across functions, increase productivity, enhance customer service and ease of use and provide agility in complying with changing federal mandates and requirements.



Driver's License System Modernization

- The new driver's license system replaces an existing legacy system, offers more customer self-service options and improves access for license renewals and vehicle registrations. The system provides Michigan Department of State employees with a better tool, promoting efficiency and providing cost savings.



Tax Registration Modernization

- The business tax registration process is the cornerstone for all business tax processes and a prerequisite for all tax functions. Improved taxpayer account profile management and tax registration will ease the administrative burden on Treasury employees and facilitate future system requirements.



Fraud Detection

- Michigan will use technology to increase government efficiency and reduce potential fraud in major human services payment systems. Using business analytic technology, Michigan will analyze payment data from both providers and citizens to look for patterns of potential fraud.



exploring technology solutions

Citizen Engagement Tools

Over the next five years, Michigan will identify and implement new media technology to engage citizens in government operations and decision making. Advanced technology is used to gather public input and foster discussion among citizens, businesses and government. The ability to provide opportunities for meaningful citizen involvement is a leading example of evolution in the ICT arena. Employees who work in this field combine their technical knowledge with an understanding of the cultural and organizational characteristics of stakeholders to solve pressing business problems.

tools and solutions

Enabling Service

- Shared resources and services
- Workflow and supply chain management
- Mobile worker and telework
- Business intelligence: Data, information sharing and management
- Open source software
- Call Center consolidation

*Appendix Resources:

Initiatives - A • Targets - B • Associated Technologies - C

Management & Infrastructure

Strengthen operations and security through statewide solutions and universal standards

Strategies

- Continue evolving Michigan's ICT standards and architecture to enable and drive a robust and agile service delivery platform.
- Utilize best practices in the management of ICT assets, including hardware, software, and data as well as information systems and applications.
- Provide optimal levels of security and citizen privacy.

Progress to Date

Michigan Information Privacy Protection Council (MIPPC)

- ✓ DTMB provides active leadership through its membership in the MIPPC, an advisory body to the Governor that is charged with providing the state with privacy protection and developing best practices to safeguard citizen data. The council includes information privacy protection officers from each executive agency, the chief privacy officer and the chief information security officer. The committee shares critical information and coordinates measures, such as filtering network traffic and protecting state assets across all executive agencies.

Centers of Excellence

- ✓ Cross-agency Centers of Excellence allow DTMB to bring together leading practitioners to address issues as a team, regardless of the function or geographic locations of employees. The centers are structured around high-demand technologies such as reporting services, virtualization and address quality assurance.

Improving Back-end Performance and Reliability

- ✓ DTMB has established a new mainframe computer and virtual tape environment to support critical business applications for seven state departments. The new technology and faster processors increase performance and improve reliability. The improvements are expected to save \$2.8 million over the next three years.
- ✓ Other back-end product and service implementations are improving computing agility. In this way, DTMB is centralizing, virtualizing and minimizing the complexity of traditional computing while improving customer service.



proof positive

Michigan Partners with the Department of Homeland Security to Enhance Computer Security

Analysts are leveraging the most advanced security technology in the world to protect the state's computer networks. Thanks to a partnership with the US Department of Homeland Security (DHS), DTMB has obtained the state-of-the-art Einstein system that monitors and analyzes anomalies that may indicate system threats. Through this, Michigan's data traffic has the same high level of protection against identity theft and cyber attacks as federal networks. Michigan is the first state to implement Einstein, which was installed at no cost to the state.

Data Center Consolidation

- ✓ The migration of 36 aging agency-based computer and server rooms and equipment into one of three secure hosting centers has improved the security, reliability, manageability and availability of critical agency applications. The consolidation of resources has saved more than \$19 million and reclaimed 30,000 square feet of office space.

Management & Infrastructure

Strengthen operations and security through statewide solutions and universal standards

Initiatives in Motion*

Public-Private Partnerships: MiCloud



- For Michigan, the road to cloud computing is a two-pronged approach to transform ICT service, function and delivery. MiCloud, an internal government cloud, will allow agency clients to tap into a portfolio of services such as cost-effective storage, enhanced data security and rapid, seamless implementation of services. MiCloud incorporates Michigan's public-private data center project to establish a public cloud for government entities statewide. This cloud will lead to shared application hosting and managed services across local and state governments, reducing cost to government statewide.

Unified Communications



- Michigan's Unified Communications initiative combines a host of technologies—real-time instant messaging, voice over Internet presence information, video conferencing and messaging—into a consistent, unified user interface. DTMB engineering teams are developing low-cost alternatives to meet the rising demand for this service.

e-Discovery



- Litigation in federal and Michigan courts requires the availability and use of electronically stored information (ESI). To respond to these requirements, the State of Michigan formed an e-discovery committee to oversee the process. This group works with the Attorney General's office and state agencies to develop a process to identify, collect, preserve and produce ESI. An e-discovery coordinator assists state agencies with these processes and works with the committee to evaluate tools, improve processes and provide resources to assist in electronic discovery for all state agencies.

Disaster Recovery Resources



- Expansion of the Disaster Recovery Test Lab will enable restoration of critical application data. Staff members are finalizing implementation of infrastructure and services to support disaster recovery planning and business continuity management across state government.

Desktop Virtualization



- DTMB leverages technologies such as virtualization to manage the state's desktops and realize additional savings. This effort aims to maximize desktop management efficiencies, drive costs down and expand green ICT initiatives.

exploring technology solutions

e-Discovery and Information Collaboration

This area of technology facilitates sharing and integration of data among departments, leveraging information to enable quicker, more effective decisions. Breaking down old barriers among government agencies—along with new federal court rules for managing electronically-stored information—has increased the need for common methods to communicate and share information with decision makers. Through information collaboration and e-discovery, Michigan will fulfill federal requirements and foster more efficient and timely use of information across agencies.

tools and solutions

Enabling Management and Infrastructure

- Statewide standards and architecture
- Web platform and Web-oriented architecture
- Alternative acquisition and delivery models
- Energy optimization and greening
- Improved cost structure
- Geographic information systems, mashups and composite applications
- Identity management

*Appendix Resources:

Initiatives - A • Targets - B • Associated Technologies - C

Great Workplace

Support a talented and engaged workforce -
Attract, engage and retain

Strategies

- Value, attract, support, train, recognize and retain an engaged, high-performing workforce.
- Maintain standards and practices requiring and enabling a high-performance workforce and workplace.
- Align workforce strategies to support, enable and help drive the Michigan ICT plan and DTMB goals and strategies.
- Support a culture of pride and responsibility for delivering exceptional service.

Progress to Date

New Leader Program and Network

- ✓ Now in its fifth year, DTMB's New Leader Program builds tomorrow's leaders. Its 120 graduates hold more than 27 percent of all leadership positions. After completing the program, 20 percent of the graduates received promotions. The program now has 40 participants and offers a networking forum that allows new leaders to interact and share solutions.

Workforce Planning

- ✓ To prepare for projected retirements and address changing staffing needs, DTMB developed a strategic workforce plan and strategy, which it delivered to the Governor in summer 2009. The plan included metrics and measures and established a structure for quarterly reports to the Governor, beginning in spring 2010.

Informal Leader Program

- ✓ This voluntary program provides leadership skills training for employees who seek personal and career leadership opportunities. The program offers professional development opportunities for employees who wish to take a more active informal leadership role in their current positions. A significant number of employees have enrolled in this self-paced program, which has received positive feedback from participants.



proof positive

MI-360 Evaluation

On an annual basis, DTMB managers get feedback from peers, employees and supervisors as part of their performance evaluations. The MI-360 program allows employees to give and receive feedback and make improvements. To encourage a candid and unguarded exchange, responses remain anonymous. "Some things I had overlooked or not even considered were brought to my attention through this process," said one manager. "It was humbling. I've already made some changes and am seeing tremendous results."

Established Leader Program

- ✓ Established leaders attend the state Executive Leadership Management Program and other topical seminars and conferences. DTMB sponsored and provided key resources to develop the Michigan Executive Learning Network, which is now in the final stages of development.

New Training Contract

- ✓ DTMB and a local community college have entered a new training partnership that allows employees to earn college credit and receive accreditation in specific technical skills. Additional classes and developmental opportunities are available through a new technical training vendor.

Great Workplace

Support a talented and engaged workforce -
Attract, engage and retain

Initiatives in Motion*

Workforce/Succession Planning

- As part of a statewide effort, DTMB is identifying trends and projections for anticipated retirement of employees in the baby-boom generation. These efforts will ensure continuity of operation and support program areas to plan for future needs. This includes the identification of metrics and measures, which will be reported quarterly.



Comprehensive On-boarding Program

- DTMB is expanding its efforts with a focus on early and active engagement and retention of new employees, providing orientation sessions and additional Web resources.



DTMB Virtual University

- DTMB's Virtual University is expanding development opportunities and resources that provide learning and career paths for ICT professionals. This online portal offers one-stop access to online training resources and information.



Employee Recognition

- DTMB is enhancing its employee recognition program. Senior leaders understand that building trust, valuing people and developing relationships are important to the department's overall success. Investment in people-related programs enhances employee relationships, improves job satisfaction and generates business benefits such as increased productivity and improved customer service and satisfaction.



Job-shadow Program

- Development of a strategic job-shadowing program will expand career enhancement and development opportunities for employees at all levels. This program will introduce employees to the options available for career growth.



Diversity Awareness

- Achieving excellence with employees, customers and suppliers requires an understanding of diverse cultures and decision-making processes. The department's new and expanding diversity awareness training and programs reflect DTMB's efforts to recognize, respect and value diversity and support the statewide diversity council.



exploring technology solutions

Enterprise Mobility

DTMB's Alternative Work Schedule initiative aligns with the Governor's directive to provide employees with greater flexibility. The initiative, which includes flexible work schedules and telecommuting options, benefits state government, employees and citizens. In DTMB, 183 employees currently take advantage of telecommuting options. This flexibility and mobility promotes job satisfaction, reduces commutes and improves quality of life. For state government, mobility can increase productivity, reduce overhead and occupancy costs and attract and retain employees.

tools and solutions

Enabling a Great Workplace

- Succession and workforce planning
- Modernization of classifications systems
- Personal productivity tools
- Group and social shared-solution tools

*Appendix Resources:

Initiatives - A • Targets - B • Associated Technologies - C

Cross-boundary Solutions

Accelerate partnerships across and beyond state government

Strategies

- Maintain innovative partnership programs for more effective and efficient government service.
- Strengthen and expand partnerships beyond government into the private sector, including connectivity, health, education, energy and other functional/service areas.
- Leverage existing and emerging ICT infrastructure and functionality across the state.

Progress to Date

Michigan Public Safety Communication System (MPSCS)

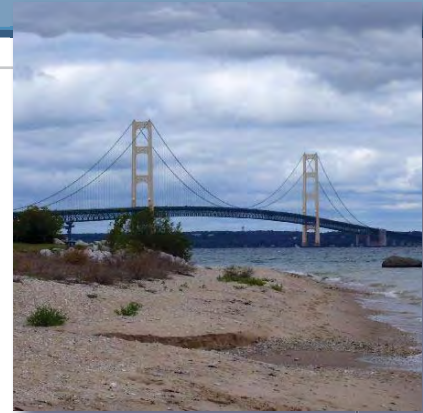
- ✓ This public safety partnership across Michigan continues to grow. MPSCS is a statewide system that serves more than 1,203 federal, state and local public safety agencies. Currently, the system supports more than 50,600 radios, 75 percent of them in use by local public safety agencies units.

Student Recruitment

- ✓ Collaboration among the Capitol Area IT Council, Lansing Community College, Michigan State University and DTMB has led to the establishment of a technology apprenticeship program. This innovative program offers area college students on-the-job training with subsequent employment opportunities.

Shared Network Services

- ✓ The state and various local governments are promoting shared networks and service. Examples include Oakland County's local government network transport for state government offices that are co-located within the county; Alpena County's fiber co-op to aggregate city/county/state buying power in low-cost fiber transmission services; and the City of Grand Rapids' sharing of a city-provided fiber conduit and fiber to connect the Kent County network and state offices in the city at high speeds.



proof positive

Michigan Health Information Network (MiHIN)

MiHIN began in 2005, when Governor Granholm directed the Michigan Department of Community Health and former Michigan Department of Information Technology to convene stakeholders to discuss improving the quality and decreasing the cost of healthcare in Michigan. In 2006, more than 200 stakeholders participated in development of the MiHIN Conduit to Care, a plan that guides the statewide exchange of health information. Conduit to Care established a roadmap that ensures this exchange occurs in regions across the state, including rural and medically underserved areas.

Michigan Recovery and Broadband Action

- ✓ Early in 2009, Governor Granholm called for project proposals in anticipation of the American Recovery and Reinvestment Act (ARRA) funding. DTMB took a lead role coordinating the reporting for ARRA and led technology-related opportunities.
- ✓ DTMB coordinated 300 requests for increased broadband investment through creation of a Broadband Planning Consortium. Michigan secured approximately \$53 million in funding in the first round of awards. A similar process was used in round two funding, which is expected to be announced in mid-2010.

Cross-boundary Solutions

Accelerate partnerships across and beyond state government

Initiatives in Motion*

Data Exchange with Major Utility Companies

- DTMB is working with major utilities to facilitate automatic payment of utility bills for clients with lower incomes to prevent utility shutoffs.



Data Sharing with Michigan United Way

- A partnership between DTMB and the Michigan United Way 211 call center network provides access to databases and information, enabling staff to build a searchable map of assistive community resources.



Health IT

- The health IT arena has provided another key area for ARRA involvement. With the state CIO as a cochair, the Michigan Health Information Network (MiHIN) program has submitted Michigan's strategic and operational plans to the Office of the National Coordinator for Health Information Technology. A nonprofit organization is being developed to oversee implementation of the MiHIN shared-services architecture and to manage funding.



Statewide GIS Business Plan

- An effort to write a statewide geographic information systems (GIS) business plan is underway. Staff organized several regional sessions attended by nearly 200 participants from government, education and the private sector. Also, 300 GIS leaders responded to an online survey, and a number of them participated in in-depth interviews. The plan will provide units of government with access and resources that make full use of GIS technology in their communities.



Michigan Information Management Operations

- An enterprise information management competency is being developed to maximize the significant data available to the state. This will result in transformative enterprise reporting and business intelligence functionality.



Broadband Expansion

- Continuing partnerships with groups that receive ARRA funds will facilitate collaboration among local stakeholders as projects roll out between now and 2012. DTMB also will work with NASCIO and other entities to ensure the national broadband plan supports the expansion and use of broadband in Michigan.



exploring technology solutions

Shared Technology Infrastructure

Sharing and integrating infrastructure resources between public and private partners is a top priority for 2010-2014. Over the years, Michigan has worked aggressively to build a cross-agency technology infrastructure that is unified, well-coordinated, interoperable and universally available. For state government, a shared technology infrastructure is steadily evolving as the structural foundation that links and empowers all operations.

tools and solutions

Enabling Cross-boundary Solutions

- Shared governance, infrastructure and services
- Cross-boundary standards and architecture
- Public-private partnerships
- Health information exchanges
- Smart computing

*Appendix Resources:
Initiatives - A • Targets - B • Associated Technologies - C

Innovation & Transformation

Drive innovation and technology to transform Michigan government

Strategies

- Fully integrate change, performance and innovation management processes.
- Systematically adapt the array of processes, solutions and public services available—as well as the mechanisms for delivery—according to current and future needs.
- Recognize and advance relationships among information, communications and technology.
- Utilize ICT to address challenges and opportunities associated with Michigan's economic and governmental changes.

Progress to Date

New Economy Partnerships (NEP)

- ✓ This innovative partnership is elevating Michigan as an ideal location for information, communications and technology businesses as well as workforce and thought leadership.
- ✓ In partnership with other state departments and external partners, the program has helped generate more than 5,000 direct and indirect jobs as well as \$23.7 million in private sector investment commitments to date.

Enterprise Performance Management

- ✓ DTMB has established a new unit and focus on performance management to drive better decision-making and organizational effectiveness through open and consistent use of performance measures.
- ✓ A common data repository for DTMB performance management information has been established and measures for the first department-wide operational dashboard are being developed.

Portfolio Prioritization/

Enterprise Portfolio Management Office

- ✓ The state has strengthened and formalized the ICT, portfolio and change-management processes.



proof positive

Online Employer Toolkit

The New Economy Partnerships' Web site offers a customized toolkit to help build and grow ICT businesses in Michigan. The tools cover a range of topics, from locating relevant business incentives to workforce development. Other resources help employees find the right neighborhoods to call home as well as the right schools for their children. The toolkit offers details on incentives, e-tools to operate businesses in Michigan, relevant maps, the Michigan Talent Bank job search forum and abundant information about life in Michigan.



Innovation & Transformation

Drive innovation and technology to transform Michigan government

Initiatives in Motion*

User-centered Design Shared-services Team



- As more state services become Internet accessible, successful implementation of government Web services relies on designs that promote ease of use, accessibility and a positive user experience. By establishing a User Experience Shared Services Team, DTMB will provide design services, testing and educational opportunities to project and development teams statewide to promote the design and development of highly usable Web sites and applications.
- The team will focus on user requirements gathered through industry-standard methods to develop visual and navigational designs and prototype and test them for usability.

Statewide Skills Alliance



- As part of NEP and in partnership with the Michigan Department of Energy, Labor and Economic Growth, DTMB is pursuing the establishment of a statewide workforce development alliance focused on the ICT sector. This will foster partnerships between the employer community and higher education, helping bridge workforce development gaps in Michigan's ICT industry.

Innovation and Performance Management Program



- A DTMB-based and stakeholder-partnered sustainable process and program will be implemented, identifying and targeting best-practice, innovative business-process and ICT solutions for Michigan's priority state and local service areas.

Intelligent Transportation Systems



- The use of intelligent transportation system data and interfaces requires data repositories, analysis tools, decision support and communication systems that will be developed to accommodate this cutting-edge technology. This will allow interaction between the driver, the vehicle and the systems.

exploring technology solutions

MiCloud - Cloud Computing

Michigan's cloud computing program, dubbed "MiCloud," provides governance and direction for cloud-computing efforts. The MiCloud initiative is charged with proving, piloting and sourcing the State's government cloud offerings. With a focus on transforming government operations, Michigan is moving toward leveraging the cloud to provide clients with rapid, secure and lower-cost services. See Appendix K for more information.

tools and solutions

Enabling Innovation and Transformation

- Competency centers
- Project and portfolio management
- Performance management dashboards
- Process redesign
- Technology planning and management
- Technology convergence

*Appendix Resources:

Initiatives - A • Targets - B • Associated Technologies - C

executive summary

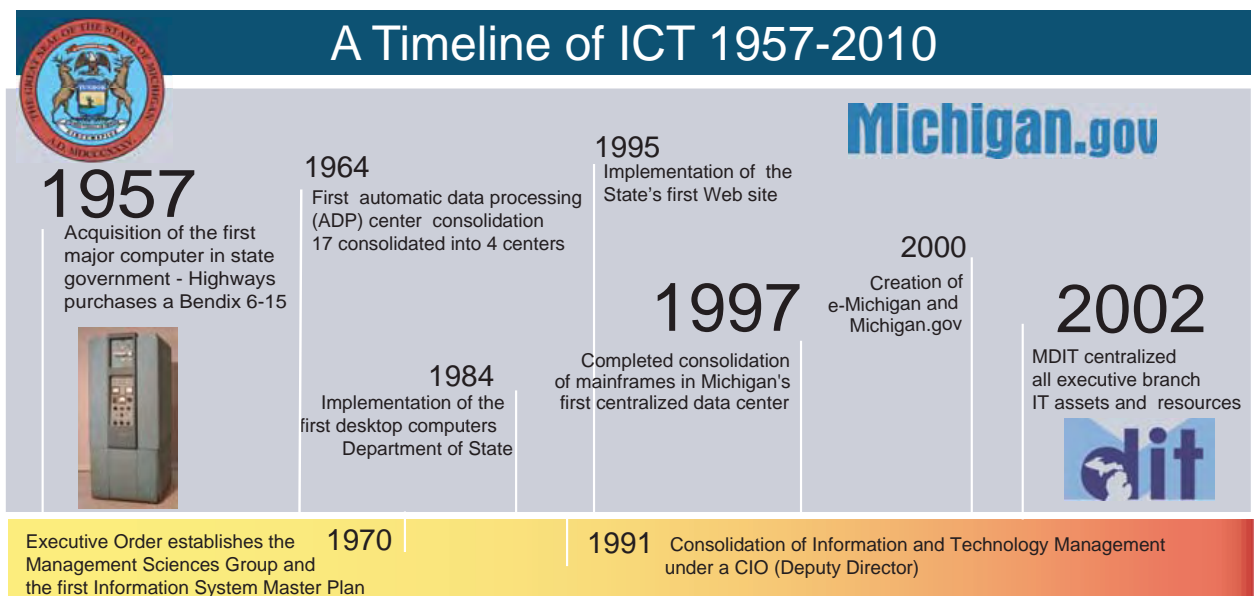
moving michigan ahead

After more than 50 years of operation and eight years of a consolidated structure (see the chronology below), Michigan's ICT has advanced to a point where existing commitments and some of the historical structural challenges facing the state can now be addressed. Required next steps range from continuing to provide core services to identifying, assessing and implementing solutions and technologies with transformational potential. The state has reached a unique juncture at which government technology is maturing from operational consolidation to working with agency and external partners to drive and enable shared services, collaboration and innovation.

It takes more than a clear vision of action to carry out a strategic plan for the ICT operations of an entire state government, especially a plan that seeks to stretch the boundaries and capabilities of systems and processes currently in place. The pages that follow articulate how DTMB will carry out the plan both today and in the future and, just as importantly, how that plan will be measured and adjusted as appropriate over time.

Technology and Business Solutions

Research and development of technology solutions are an important way in which Michigan's ICT Strategic Plan is enabled and implemented. The planning process has consistently included an evaluation and review of the full range of current and emerging technologies feasible and appropriate for implementation. For the 2010 to 2014 period, selection of areas of technology focus were based on a thorough assessment of state department requirements and Michigan citizen needs and was formed by objective analysis by experts such as Gartner Inc. and Forrester Research Inc.



technology focus areas: 2010-2014

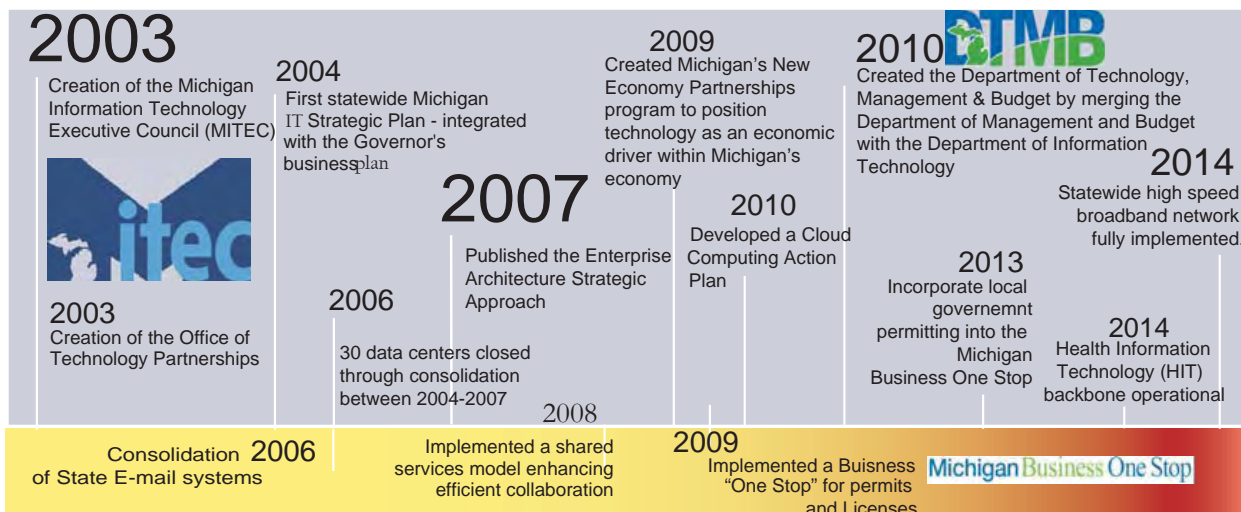
Focus areas for the next five years are highlighted in the previous goals pages. They are also detailed in Appendix C "Technology Solutions," as follows:

- Streamlined Citizen Transaction and Self-Service
- Citizen Engagement Tools
- Shared Technology Infrastructure
- Information Collaboration and e-Discovery
- Enterprise Mobility
- Cloud Computing (Appendix K)

Over the next five years, Michigan's ICT decision makers, in concert with the Michigan Information Technology Executive Council (MITEC) and other stakeholders, will determine the specific technologies to adopt for implementation. Some of the technology adoption will occur in the short range (less than two years) while others are further out (two to five years). The emphasis is on solutions with the highest or most transformational impact. Across the board, they fall into the following categories:

- Social trends: Consumerization, green ICT, Really Simple Syndication (RSS) and social computing and networking
- Business trends: Business process modeling, centers of excellence, Web 2.0 business models and workplace technologies, software as a service, externalization and enterprise architecture
- Technology trends: Enterprise instant messaging, location-aware applications, mashups, open source, service-oriented architecture, radio frequency identification (RFI), social network analysis, unified communications, VoIP convergence, enterprise information management, advanced analytics, smart computing, business intelligence and virtualization.

A History of Innovation and Service



moving michigan ahead

implementing the plan

In addition to exploring the technology areas outlined on the preceding pages, Michigan will use following steps to move the 2010 to 2014 Michigan ICT Strategic Plan from vision to action. The figure on page 11 illustrates how the driving principles—developed with and for ICT stakeholders across Michigan—are linked to the goals and related activities described throughout this plan. For its next steps, Michigan is focused on the following:

- **Building on Existing Strengths and Best Practices:** Building on gubernatorial leadership and aligning to the Cabinet Priorities and agency business plans are critical. Given Michigan's ICT maturity and existing capabilities as well as the strategic role of information, communications and technology, the state can aggressively move into a cross-boundary shared-service model with national-caliber information and performance management.
- **Remaining Active and Engaged with National and Global Issues:** Steadfast recognition of changing national and global issues will also play a role in moving this plan forward. Globalization and the new economy, consumerization, utilization of sustainable resources, and assuring privacy and security are also key.
- **Addressing Michigan's Priority Development:** Plan integration must be closely tied to priorities specific to the State of Michigan. To this end, we will:
 - Maintain Statewide Alignment: Provide ICT support to the Cabinet Priorities and agency business plan priorities and strategies, strengthening existing initiatives and identifying new opportunities.
 - Challenge the Structural Status Quo: Leverage the strategic role of ICT and emphasize innovation and transformation through key partnerships.
 - Develop Signature ICT Initiatives: Provide issue assessment, solution and process design and support for selected flagship issue areas such as economic development, healthcare and education.
 - Support Agency Priorities: Listen to agencies and develop innovative but practical ICT solutions that meet agency needs.
- **Bridging Driving Principles and Goals and Incorporating them into Daily Activity:** The illustration on page 11 shows the framework of principles that bridge and integrate goals and initiatives and guide the ICT strategic direction and plan implementation. Over the next five years, DTMB must develop remaining functional and service area plans, organize strategic technologies at the enterprise level as well as targeted principles and goal areas, and develop and integrate a shared-services model.

Below are selected key initiatives that will ensure effective and improved ICT service delivery. They will be implemented in the sustainable near-term future (through 2011) and the intermediate future (through 2014). They include:

Sustainable Near Future: Accountable Management and Performance

Refine and modernize the management and governance framework for challenges in support of strategies under goals one, two, three and four.

- Effective and Efficient Customer-based Operations and Services
 - Expand current services to mobile devices for additional access to Michigan services as well as providing text alerts (2010).
 - Continue full implementation of Web 2.0 technologies within Michigan.gov and help agencies understand potential uses and implement technology (2011).
 - Implement a citizen one-stop portal that provides one place for access to government services uniquely tailored to citizen needs based on individual profiles (2012).
- Performance Management, Accountability and Public Value
 - Establish a usability lab to capture public/private input on software usability in design (2011).
 - Establish formal performance tracking and monitoring capabilities to ensure transparency, identify and manage change opportunities and report on and manage performance (2011).
 - Formalize ICT investment planning and management in the project, portfolio and change management process (2012).
- Privacy, Transparency, Security and Public Trust
 - Support agencies in developing strategies to promote open government and protect data privacy (ongoing).
 - In support of Michigan's mobile workers, provide data encryption for all 12,000 State of Michigan notebook users (2011).
 - Complete the development of a comprehensive disaster recovery plan to cover 100 percent of mission-critical applications (2012).
- Well-supported and Engaged Workforce
 - Fully implement the DTMB Virtual University, a single and centralized source of professional development, focused on the technical skills, for employees (2010).
 - Design and implement a diversity program to improve the culture of the agency and leverage the diversity of staff as an integral factor in organizational success (2010).
 - Develop and implement a security awareness program that complements the state's policy and technology initiatives (2011).

action steps

implementing the plan

Intermediate Future - Innovation, Change and Transformation of Government

Provide a mature, modern, best-practices scope of solutions and enable innovation, change and transformation of government that support goals two, three, five and six.

- Agile Management and Infrastructure
 - Implement a desktop virtualization solutions assessment and pilot (2011).
 - Develop and adapt the business model, policies and principles around opportunities such as virtualization, modularization, Web and multiple service delivery options for infrastructure, information and applications (2012).
 - Implement an automated PC Power Management System (2013).
- Shared Solutions, Standards and Flexible, Open Boundaries
 - Develop a geospatial business plan to help reduce costs and create efficiency (2010).
 - Pilot the concept of state, local government and school districts sharing/leveraging existing networks throughout the state (2010).
 - Expand the data transmission and sharing capabilities using the Michigan Public Safety Communication System through wireless broadband (2013).
- Maturation and Modernization of Solutions
 - Foster a culture of innovation and thinking from the customer's perspective. Through practices such as job shadowing, become routinely involved in customer activities, getting to know their business needs first-hand (2010).
 - Continue to implement the State Unified Information Technology Environment (SUITE) processes to achieve Level 3 Capability Maturity Model Integration (CMMI) compliance (2013).
- Innovation and Transformation
 - Implement MiCloud roadmap enabling services to be more accessible and less expensive (2010).
 - Refine enterprise architecture and the information architecture capabilities to support innovation and transformation (2011).
 - Formalize the enterprise information management program to take full advantage of business intelligence, awareness and solution generation (2011).
 - Develop a multiyear, source, partner and ICT solution and service-funding model jointly with the Budget Office (2012).

State of Michigan | ICT Strategic Plan
2010-2014

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Initiatives & Solutions

2010 Information Technology Projects

This section lists and describes Michigan's top information technology projects. These are just some of the ICT projects underway in Michigan.

DTMB works with all Michigan government agencies to help them achieve their goals and serve Michigan's citizens. In some cases, projects cross agency boundaries. In many cases, projects are enterprise-wide, serving all state government agencies. Many projects are partnerships with state agencies and local governments, benefiting all Michigan citizens. This list is constantly changing as projects are completed or new initiatives are identified.

The first section lists the top ICT projects by agency. The second is a complete list of projects and their descriptions as well as their alignment to the Information Technology Strategic Plan and the Cabinet Action Plan.



Partner Agency: Executive Branch

IT Agency Business Drivers: Creating Opportunity in a Changing World, Diversifying our Economy, Educating our People

In these tough times, government cannot be all things to all people. We have to focus on these things:

- Creating Jobs Through Diversification
- Creating a Well-Educated, Highly Trained Workforce
- Protecting Michigan's Citizens and Their Pocketbooks

If we focus on these things, if we say no to distractions and divisions, and if we commit to urgent action, we will emerge from current challenges with a leaner, smarter, stronger and more entrepreneurial Michigan

Top ICT Projects:

- ✓ Michigan Business One Stop
- ✓ Connect every region of the state to high-speed Internet service
- ✓ E-Michigan enhancements



Partner Agency: Department of Community Health (MDCH)

IT Agency Business Drivers: The Department of Community Health (MDCH) is responsible for health policy and management of the state's publicly funded health service systems. MDCH clients expect automated services. Demand for these services will increase as society moves from employer-sponsored healthcare delivery systems.

Top ICT Projects:

- ✓ Michigan Health Information Network (MIHIN), <http://www.mihin.org/>
- ✓ Pharmacy system replacement



Partner Agency: Department of Human Services

IT Agency Business Drivers: The Michigan Department of Human Services (DHS) assists children, families and vulnerable adults to be safe, stable and self-supporting. Remote and mobile computing remain important to DHS along with upgrade of legacy systems.

Top ICT Projects:

- ✓ Child Welfare System modernization
- ✓ Document Management
- ✓ Bridges Self-Service

Initiatives & Solutions

Partner Agency: Department of State (MDOS)

IT Agency Business Drivers: The Michigan Department of State (MDOS) serves the citizens of Michigan with programs designed to administer driver and vehicle systems, enhance traffic safety, protect consumers, ensure integrity of records maintained and oversee the statewide elections process. MDOS will continue to benefit from Web and videoconferencing and will focus on technology re-engineering that will result from the Business Application Modernization project.

Top ICT Projects:

- ✓ Business Application Modernization (BAM)
- ✓ Modernization of driver's license system



Partner Agency: Department of Corrections (MDOC)

IT Agency Business Drivers: The Michigan Department of Corrections (MDOC) provides public protection while making the most efficient use of the state's resources. MDOC ensures that appropriate supervision is maintained so Michigan's neighborhoods, families and citizens are protected. MDOC is moving toward mobile technologies, electronic file storage, Web-based technologies and biometrics.

Top ICT Projects:

- ✓ Parolee self-service check-in using kiosks and phones
- ✓ Prisoner time computation



Partner Agency: State Budget Office (SBO)

IT Agency Business Drivers: The State Budget Office (SBO) coordinates all aspects of the state budget, including development of the Executive Budget recommendation, presentation of the budget to the Legislature and implementation of the budget after enactment.

Top ICT Project:

- ✓ MAIN hosting RFP

Partner Agency: Department of Energy, Labor and Economic Growth's (DELEG)

IT Agency Business Drivers: The Department of Energy, Labor and Economic Growth's (DELEG) mission is to grow Michigan by promoting economic and workforce development, stimulating job creation and enhancing quality of life in Michigan. DLEG will increase its use of the Internet to provide customer service, generating the need for more Web-based applications; however, traditional paper intake will remain, so document management will be needed for routing and paperless document access (via scanned images). There also will be a need for greater use of available and emerging technologies.

Top ICT Project:

- ✓ Unemployment insurance modernization
- ✓ Corporations system re-write
- ✓ Insurance and banking system re-write
- ✓ Liquor purchasing and inventory system modernization



Initiatives & Solutions



Partner Agency: Department of Natural Resources and Environment (DNRE)

IT Agency Business Drivers: The Department of Natural Resources and Environment (DNRE) is committed to the conservation, protection, management, and accessible use and enjoyment of the state's environment, natural resources and related economic interests for current and future generations. DNRE anticipates that citizens will expect ubiquitous access to information they want, when they want and by what means they want. DNRE sees more orientation to online Web-based services, mobile computing and data access to central electronic files, use of GIS and collaboration tools.

Top ICT Projects:

- ✓ Document management
- ✓ Michigan Air Emissions Reporting System (MAERS)
- ✓ SQL2005 migration - DNR ISQL



Partner Agency: Department of Technology, Management & Budget

IT Agency Business Drivers: The Department of Technology, Management & Budget promotes a unified approach to information technology management and provides centralized administration of services, including auditing, budgeting, employee resources, financial services, fleet management, mail, printing, property management, purchasing, records management and retirement services for departments and agencies in the executive branch of state government.

Top ICT Projects:

- ✓ Enhanced document management
- ✓ Cloud computing
- ✓ SharePoint - Intranet
- ✓ Tridium (energy management system)
- ✓ Shared local mapping initiative
- ✓ Expanded access to mobile users
- ✓ Expanded use of social networking Web sites to reach citizens
- ✓ Shared data center



Partner Agency: Department of Education (MDE)

IT Agency Business Drivers: The Department of Education (MDE) has responsibilities in the areas of early childhood development, educational assessment, educational technology, school improvement, professional preparation, special education, school aid, school finance and technical education. MDE needs business inquiry tools that enable staff to create meaningful summaries from different data sources. The department also will seek more remote training tools and training on-demand opportunities.

Top ICT Projects:

- ✓ State aid management system
- ✓ Statewide education longitudinal data system

Initiatives & Solutions

Partner Agency: Michigan Department of Agriculture (MDA)

IT Agency Business Drivers: The Michigan Department of Agriculture (MDA) has the dual role of regulator and marketer. MDA provides Michigan citizens with quality services and information by working cooperatively with many state, federal and local agencies and other organizations including universities, colleges and associations. MDA will provide additional customer service options; improve workforce retention; online and centralized business licensing and registration options (including personal certifications), and rework the model for providing examinations and credential authentication for pesticide applicators and weights and measures service personnel.

Top ICT Projects:

- ✓ USAHerds system development
- ✓ MIInspector



Partner Agency: Michigan Department of Transportation (MDOT)

IT Agency Business Drivers:

The Michigan Department of Transportation (MDOT) provides the highest quality integrated transportation services for economic benefit and improved quality of life. MDOT will pursue business continuity planning to collaborate with local governments, increase self-service opportunities (permits, reports and traffic information), use more mobile computing and collaboration tools and increase its Web-based services while sharing data between systems (geographic information).

Top ICT Projects:

- ✓ Intelligent transportation systems
- ✓ User-centered design shared services team
- ✓ Legacy Application Migration Program (LAMP)



Partner Agency: Michigan Economic Development Corporation

IT Agency Business Drivers: The Michigan Economic Development Corporation (MEDC) promotes economic development and tourism in Michigan. MEDC has several ICT business drivers. The department would like to incorporate Voice Over Internet Protocol (VoIP) to assist with access to the state by the mobile workforce. MEDC also sees its Web presence growing in the next three to five years.

Top ICT Projects:

- ✓ www.michigan.org site changes



Initiatives & Solutions



Partner Agency: Michigan State Police (MSP)

IT Agency Business Drivers: The Michigan State Police (MSP) provides general law enforcement services and is responsible for the development and coordination of state-level programs, technologies and specialized services that enhance enforcement and emergency response capabilities for the entire public safety community. MSP is exploring geographic information systems (GIS) for crime mapping, real-time data collection and analysis and expanding video feeds to the operations center. MSP expects an interest and demand for Internet tools to increase, such as the Internet Criminal History Access Tool and the Public Sex Offender Registry. The department also sees expanded uses for mobile computing, including devices used in working from the field and for use in onsite inspection, and collaboration tools for use in video and Web conferencing.

Top ICT Projects:

- ✓ Automated Incident Capture System (AICS) rewrite
- ✓ National Law Enforcement Transaction System (NLETS) State, Regional and Federal Enterprise Retrieval System (SRFRS)
- ✓ Automated Fingerprint Identification System (AFIS) mobile identification



Partner Agency: Michigan Department of Treasury (Treasury)

IT Agency Business Drivers: The Michigan Department of Treasury (Treasury) collects, invests and disburses all state monies and administers major tax laws, property tax laws and safeguards the credit of the state and its local units of government. Treasury also invests the retirement funds of Michigan's state employees, public school employees, state police and judges. In addition, Treasury distributes revenue-sharing monies to local units of government, audits municipal finance records and reunites abandoned property with its rightful owner.

Top ICT Projects:

- ✓ Tax registration modernization
- ✓ Michigan College Access Portal (MiCAP)
- ✓ Michigan Integrated Tax Administration System (MIITAS)



Partner Agency: Michigan Department of Civil Service (MCSC)

IT Agency Business Drivers: The Michigan Department of Civil Service (MCSC) provides innovative, effective and timely human resources consultation and services to attract, develop and retain a workforce that is diverse, flexible, creative and competent to meet the ever-changing needs of state government. MDCS has a need for new Web-based services (sharing data between systems), enhanced collaboration tools (videoconferencing, Web conferencing) and MDIT resources in Web-based technologies (.net, Java, etc.). In addition, business inquiry tools are needed as a means to create meaningful summaries from different data sources as well as increasing the use of videoconferencing and remote training tools such as training opportunities on-demand.

Top ICT Project:

- ✓ Job Specifications System and Information Application

Initiatives & Solutions

Partner Agency: State Lottery

IT Agency Business Drivers: The mission of the Bureau of State Lottery (Lottery) is to maximize net revenues to supplement state education programs, provide fun and entertaining games of chance and operate all games and bureau functions with total integrity. Lottery has a need to become more service oriented in meeting the needs of retailers and customers and plans to expand the services available to retailers and players via the Web and kiosks.

Top ICT Project:

- ✓ Charitable gaming application re-write


Partner Agency: Michigan Supreme Court

IT Agency Business Drivers: The Michigan Supreme Court is Michigan's court of last resort, consisting of seven justices. Each year, the Supreme Court receives more than 2,000 applications for leave to appeal from litigants that are primarily seeking review of decisions by the Michigan Court of Appeals. The Supreme Court's authority to hear cases is discretionary. In addition to its judicial duties, the Supreme Court is responsible for the general administrative supervision of all courts in the state. The Supreme Court establishes rules for practice and procedure in all courts. The court is seeking greater use of collaboration tools and data sharing and needs workflow and document management solutions.

Top ICT Project:

- ✓ Statewide Court System


Partner Agency: Michigan Attorney General's (AG)

IT Agency Business Drivers: Within the Michigan Attorney General's (AG) Office are the Child and Family Services Bureau, the Consumer Protection and Criminal Prosecutions Bureau, the Economic Development and Oversight Bureau, the AG Executive Office and the Governmental Affairs Bureau. The AG's office wants to develop the full functionality of existing applications and put in place more electronic interaction options between the courts and clients, increasing access to the ICT environment.

Top ICT Projects:

- ✓ Charitable trust information online


Partner Agency: Shared IT Service Enterprise Wide

Shared ICT services are services and applications vital to more than one agency that can be centrally managed as a service center. Shared ICT services hold an increasingly important role as the state strives to improve service delivery and efficiency. Through consolidation and standardization, the State of Michigan is better prepared to expand its utilization of shared ICT services.

Below are examples of shared ICT service areas that the state is pursuing:

- ✓ Business Objects Service Center
- ✓ Address standardization
- ✓ Data sharing – in/out of state government
- ✓ ETL Tools (Extract, Transform and Load)
- ✓ Shared local mapping initiative
- ✓ Document Management
- ✓ Health Information Technology
- ✓ Unified Communications



Initiatives & Solutions

State of Michigan Cabinet Priorities



Creating Jobs through Diversification

*Continuing efforts to remake
Michigan's economy*



Creating a Well-Educated, Highly Trained Workforce

*Doubling the number of
college graduates and giving
every person the tools for
success in the 21st
century economy*



Protecting Michigan's Citizens

*Safeguarding the physical
and financial well-being of
every Michigan resident
—particularly our most
vulnerable citizens*



Better Government

*Making government more
cost effective and efficient*

Top ICT Project Descriptions

Below is a comprehensive list of state ICT projects and short descriptions of each. The project's align with the Information Communication Technology Strategic Plan goal areas and the priorities of the State.

Animal Identification System

- This Michigan system supports the federal National Animal Identification System under the U.S. Department of Agriculture.

Automated Incident Capture System (AICS) rewrite

- Rewrite the current incident tracking system.

Automated Fingerprint Identification System (AFIS) mobile ID

- Allows an officer on the street or at the border to capture one or more fingerprints with a handheld device and transmit to Michigan AFIS for a positive identification.

Bridges Self-Service

- This expansion will allow self-service intake for additional income assistance programs: cash, day care, emergency assistance and health care. This expansion will add new eligibility questions and business logic to the existing online food stamp application. Likewise, we will enhance our interactive voice response (IVR) system to allow DHS clients to check benefit status and change demographic information. This self-service expansion is needed to provide relief to caseworkers whose caseload ratio has grown from 200:1 to 700:1 in the past five years.

Bridge scour management system

- Provide an Internet-based method for filling out scour critical bridge action plan forms, store the form information in the department's bridge database and provide management tools for bridge managers to use when managing the state's scour critical bridges during flood events and for asset management.

Broadband interconnectivity for health records

- Expansion of broadband communication within the state so hospitals and other health providers will have the broadband to transmit and receive electronic medical health records over the MiHIN.

Business Application Modernization (BAM) – Driver's license and vehicle registration

- BAM is a multiphased project that includes re-engineering the business processes, developing business requirements, designing and eventually building a technical infrastructure to support Department of State business.

Charitable gaming application rewrite

- This is a rewrite of the charitable gaming application to a .NET application.

Charitable trust information online

- Provide the public with a means to find information in the legal files system about licensed and registered organizations via the Internet

Child Welfare Information System modernization

- Michigan's Child Welfare Information System will be replaced because of aging technology and program weaknesses. This project will build a new custom system that replaces

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multiple child welfare tracking, reporting and financial systems. It will allow child placing agencies to have Web access for out-of-home care reporting. It will also be designed to allow field workers to make updates using mobile technology.

Citizen Access Initiative – United Way

- 120 United Way offices will help citizens apply for assistance benefits from DHS via Helping Hand. Includes tax filing assistance (currently being done).

Cloud computing

- The state's cloud computing strategy includes an initiative to build a government cloud – MiCloud – to securely provision a portfolio of functions internally. Part of this effort includes building a new data center that will serve as a public cloud for government entities across the state. This initiative will cut the cost of government by reducing the number of duplicate computer systems operated by cities, counties and state agencies. The plan envisions a public-sector cloud that would offer application hosting and managed services to any public entity in Michigan.

Cogeneration Project – Secondary Complex

- Installation of a cogeneration system based on 2.3 megawatt gas turbine generators and two 1,000-ton absorption chillers at a capital cost of \$11.8 million. The project will net \$1.6 million in energy savings per year and reduce 10,386 metric tons of carbon dioxide annually.

College Access Network

- This portal will provide students with information on postsecondary education opportunities, career preparation, college financing and grants.

Conservation AVL upgrade

- DNRE upgrade legacy radio solution. Leverage SOM MPSCS enterprise solution for vehicle and law enforcement personnel responding to incidents.

Cross Boundary Initiatives

The Cross Boundary Initiatives include:

- ✓ Local Government Status Board (LGSB) access to information and notifications of occurrences affecting local government.
- ✓ Michigan Sharing Information and Analysis Center (MI ISAC) provides a central resource for gathering information on cyber threats to critical infrastructure throughout the state and provides two-way sharing of information between and among state and local governments, educational institutions and emergency management entities.

Data sharing across agencies

- Several systems will share information, providing service application efficiencies internally and to citizens. For example, the Bridges application will begin sharing data with DCH's Medicaid system to automatically determine eligibility for children's healthcare.

Data warehouse – shared services

- Manage and enhance shared services through the data warehouse as agency participation and demand increase.

Digital air monitoring

- Upgrade analog air monitors to digital monitors. This will give more accurate and enhanced air monitoring reporting capabilities with elec updates to EPA

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Disaster recovery planning

- Develop disaster recovery and service-level agreements between MDIT and state agencies. The agreements will outline detailed systems configuration and disaster recovery requirements for all of the state's 33 critical applications.

Document management program

- Currently, various state agencies that are undertaking document management projects may not be aware of existing solutions within the agency or other state agencies. Many of these solutions could be leveraged, in part or in total, for new projects; however, there is no central resource for document management project implementation. This project will develop a State of Michigan document management strategic policy and plan. It will take into account the needs and limitations of state agencies and provide options for implementation. It will provide statewide standards and criteria for screening potential document management projects, a recommended screening process and a mechanism for conducting the screening.

EDM – Electronic Document Management

- This is a storage system of paper documents that the state receives and put keys on these records so that users can view the documents using FileNet software or by systems like Champs to retrieve the data for users automatically within their applications.

DHS will use EDM to route client applications and verification documents (W2, pay stubs etc.) between a centralized intake office to field workers.

e-discovery strategy

- Assist state agencies in understanding the new requirements for providing electronically-stored information as part of the discovery process in civil and criminal cases. Assist in determining the state of Michigan's obligation to respond to e-discovery requests.

e-Health

- Leverage the Oakland County e-Health system to create a statewide food and dairy inspection platform between MDA and local health agencies. Completion is targeted for September 2010.

e-Michigan enhancements

- This is an ongoing effort to continually improve use of new technology to make citizen access to government services easier and more user friendly.

e-Procurement

- Implement online Bid4Michigan system pushing bid solicitations out to vendors and capturing demographics on responsive parties. The system is shared with many community colleges. A parallel system exists for local units of government. The system is capable of receiving responses online and has evaluation and comparison functionality. Future enhancements include improvements in user security and data tracking to allow integration with state financial systems (MAIN) and workflow and approval processes (ITRAC).

Expanded access to mobile users

- Several of Michigan's services are currently accessible to citizens with mobile devices. This effort will expand access to these services from any mobile device providing services from anywhere.

Expanded use of social networking Web sites to reach citizens

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- Currently, several State Agencies are using social networking web sites as one option to reach citizens and to further promote government information and services. As demand increases from citizens for these types of communication channels, State Agencies will continue to grow the use of these to better serve citizens.

Field manager rewrite

- This effort includes automating the approval process for certain Field Manager reports to improve untimely completion of documentation and improve timeframes for contractor payment. In addition significant user suggested enhancements will be included.

Financial System Study - Next Generation

- The study will examine the costs associated with both retaining and replacing MAIN, the State's financial system. It will determine the best course of action for the future of MAIN as it fits into state business: retain and maintain, replace in pieces or replace entirely.

Great Lakes Information and Technology Center (GL-ITC) project

The State is pursuing a public-private partnership to replace two of its existing hosting centers with a purpose-built center that will:

- ✓ Improve efficiency
- ✓ Maximize energy utilization
- ✓ Deliver economic development and support job creation in Michigan
- ✓ Promote better government and increased collaboration.

Helping Hand Portal - Enhancements

- Michigan developed a information and online one-stop for assistive services called the Michigan Helping Hand portal. The portal aggregates assistive services and eligibility information in one place. Eligibility wizards help citizens determine potential eligibility for dozens of state programs and offers online application for many of these services. The intent is to help first-time applicants quickly determine resources available and then help them apply online

Human Capital Management and Employee Development

- This initiative primarily focuses on MDIT employees and internship program participants. Professional development and job alignment improves the MDIT work environment and ultimately leads to higher productivity and client satisfaction.

Hunting Retail Sales Upgrade

- The DNRE Retail Sales Systems (RSS) is being upgraded to a real time system that both improves the customer experience but also allows the State to enhance its operations in relation to customers and offerings through agents and the internet. RSS is used to sell applications, licenses and permits for hunting, fishing and recreational vehicle use

Insurance & Banking System Re-write

- This effort will provide enhanced services for those responsible for insurance regulation.

Intelligent Transportation Systems

- Data repositories, analysis tools, and decision support and communication systems will be developed to accommodate the use of Intelligent Transportation System data and interfaces. The interaction between driver and vehicle, the communications from vehicle to vehicle, and vehicle to infrastructure, as well as vehicle to commercial businesses is expected to expand greatly over the next few years potentially resulting in a substantial number of new communications services requiring a substantial data warehousing and

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analysis and decision support system structure.

Job Specifications System and Information Application

- This system will house and maintain Job Specifications for the Civil Service Commission, Office of Classifications, Selections, and Compensation.

Legacy Application Modernization Program (LAMP)

- The goal is optimization of MDOT's investment and operational infrastructure to enable business and ICT agility. Program objectives include moving to current, sustainable technologies that may be delivered to users via internet browser technology. Additionally, this will allow MDOT to deliver applications to users that provide a common look and feel; reducing user learning and time required to maintain applications.

Leadership Development Program

- This program is designed to provide help and support to leaders at all phases of their careers. The program is based on the theory that everyone is a leader and that differing types and levels of support are needed depending on where they are at in their career.

Liquor Purchasing And Inventory System Modernization

- This enhancement will provide enhanced purchasing, inventory and sales providing a more effective solution for the Agencies and businesses.

MAIN Modernization

- This is a multi year project that includes a number of efforts to improve a 15+ year old application, using new technologies and move off of "green screen".

Michigan Air Emissions Reporting System (MAERS)

- MAERS is an electronic tool used by both the regulated community to report emissions and by the DNRE Air Quality Division (AQD) to generate an inventory of air pollutants and report data to the EPA.

MBT - MI Integrated Tax Administration System (MIITAS)

- MIITAS will significantly improve the efficiency of tax processing and tax administration. The solution will enable increased revenue generation, provide the ability to adapt to changes and additions to tax laws, increase voluntary compliance of taxpayers and increase self-service and electronic filing, refunding and payment options.

MDIT Apprenticeship

- Working with Lansing Community College, the program provides students the ability to work for the state of Michigan and gain hands-on experience. This is a win-win for all sides as it provides the state with technology talent and allows students to gain credits while working.

Michigan Business One Stop

- The Michigan Business One Stop demonstrates how our process redesign and collaboration with the broad business community helps to transform the State government and make it possible for old and new businesses to succeed and create jobs for the people of Michigan.

Launched in March 2009, this online service guides users who want to start, operate or change a business. Business owners can apply for or renew selected permits and licenses, file reports and pay taxes and fees using a consolidated online payment capability. They can input their business data into a single profile, and use a single statewide ID. Going forward this effort includes many enhancements, including refining current process

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making them simpler for businesses.

Michigan College Access Portal (MiCAP)

- This will be a web-based system to assist students in their search for information and services as they pursue their higher education and career goals in Michigan. The system will be designed to accommodate, support, and enhance programs and initiatives to improve student participation and success throughout their education.

Michigan Education Trust Upgrade

- Upgrade of the legacy MET solution and implementation of new online self service for parents and the ability to implement new payment plans more efficiently.

Michigan Health Information Network (MiHIN)

- This effort allows health care providers to have improved access to patient health care information at the point of care and allow Michigan citizens to have improved access to their own information.

Michigan Integrated Tax Administration System (MIITAS)

- This effort will provide a framework for integrating the administration and enforcement of business and individual taxes, from e-registration to the collection of accounts receivables.

MI- Drive Expansion

- Enhancements to the current MI Drive website providing citizens with additional tools for a easier and safer trip.

MiInspector

- This new Food Inspection System will replace the existing application and provide MDA inspectors with additional functionality.

Mobile Public Safety Alerting System

- Public Safety alerts text messages to any mobile device.

Modernization of Drivers License System

- This new system replaces an existing legacy system and allows for more customer self service functionality and ease of access. In addition providing the Michigan Department of State employees a tool to get their job done much easier and more efficiently.

Mobile Finger printing

- Provides for fingerprint identification to the street officer via a mobile computer or mobile device.

MPSCS Expansion

- Upgrades will include Wireless Broadband Data capabilities, Automatic Person/Vehicle Locator, integration of Computer Aided Dispatch (CAD) with existing mobile data clients and integration with Records Management Systems (RMS) offering many options for the first responder community. This will significantly increase the options for agencies by leveraging the existing shared services model of the MPSCS. It will also allow additional data features, including automated access to centralized databases.

National Law Enforcement Transaction System (NLETS) State, Regional and Federal Enterprise Retrieval System (SRFRS)

- This system will connect law enforcement officers across the nation with immediate

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access to out of state booking photos.

One Source Credentialing - Expansion

- Addition of a web based portal to allow health professionals to enter applications instead of forms that are submitted for entering into the Credentialing system.

Parolee Self-Service Check-in via Kiosks & Phone

- This effort reduces the amount of time parole staff spends with low risk offenders to enable them to spend more time managing higher risk cases. Also included is the means for using biometric finger/thumb identification.

Prisoner Time Computation

- A re-write of the prisoner time computation program migrating this off of an older platform.

Sharepoint - Intranet

- This effort is the conversion of State Agency intranet sites to a more robust SharePoint platform.

Shared Solutions:

- ✓ Business Objects Service Center
- ✓ Address Standardization
- ✓ Data Sharing – In/Out of State Government
- ✓ ETL Tools (Extract, Transform & Load)
- ✓ Shared Local Mapping Initiative

SQL2005 Migration - DNR

- Migrate all SQL2000 Databases Objects Packages Users to SQL2005

State Aid Management System

- This effort is the upgrade of the system that supports the administration of the State School Aid Act and distributing funds to public school districts

Statewide Case Management for Administrative Hearings

- Provide a single, standardized system to manage administrative hearings in several departments.

Statewide Education Longitudinal Data System

- This will create an education data portal providing standardized reporting of student information with links to K-12 and post-secondary systems creating a collaborative tool for educators across the State.

Student Data System expansion

- The unique student identifier (UIC) established in the K-12 system will follow students into post secondary education. This will assist in tracking education and employment outcomes.

Tax Registration Modernization

- The business tax registration process is the foundational component for all business taxes and is a prerequisite for all tax functions. The project scope includes developing the framework model for Taxpayer Account profile management and tax registration.

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Tridium (Energy Management System)

- The Building Operations and Energy Monitoring Network, powered by Tridium software frameworks and infrastructure technologies, is used by Building Operations staff to remotely monitor and control building energy and operational systems. By integrating all devices into one system, Building Operations is able to collect additional data and simultaneously save the state money through the cancellation of annual sole-source maintenance agreements and service bids

Unemployment Insurance Modernization

- Currently underway is a multi-year System Integration Project to complete a comprehensive and complex rewrite of Michigan's current Unemployment Insurance (UI) systems. A modernized, integrated system will provide real-time data sharing across functions, increase productivity, enhance customer service and ease of use, and provide flexibility in complying with changing federal mandates and other requirements.

USA Herds System Development

- This application will be used for Tracking animals for the TB Eradication and Bovine Program

User Centered Design Shared Services Team

- As state services continue to move to the Internet, successful implementations of government Web services rely upon designs that promote ease of use, accessibility and a positive user experience. By establishing a User Experience Shared Services Team, MDIT can provide design services, testing and educational opportunities to projects and development teams statewide in order to promote the design and development of highly usable Web sites and applications. The team will focus on user requirements gathered through industry standard methods to develop visual and navigational designs then prototype and test them for usability.

Virtual University Expansion

- Portal that allows employees to maintain individual training plans and is integrated with online training courses and training registration applications (LCC).

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Appendix B | Targets

Targets

Top agency challenges

2008

- Daily operations
- Diminishing resources
- Achieving cost efficiencies
- Improving citizen service

2010

- Meeting business objectives with fewer resources
- Dealing with reductions
- Managing excessive and competing priorities
- Loss of workforce experience

Target Definition

Targets are focused initiatives or projects with clear timeframes. These timeframes provide the responsible program areas with the strategic guidance needed to develop more detailed milestones. Targets further define our goals and move us in the right direction as an agency.

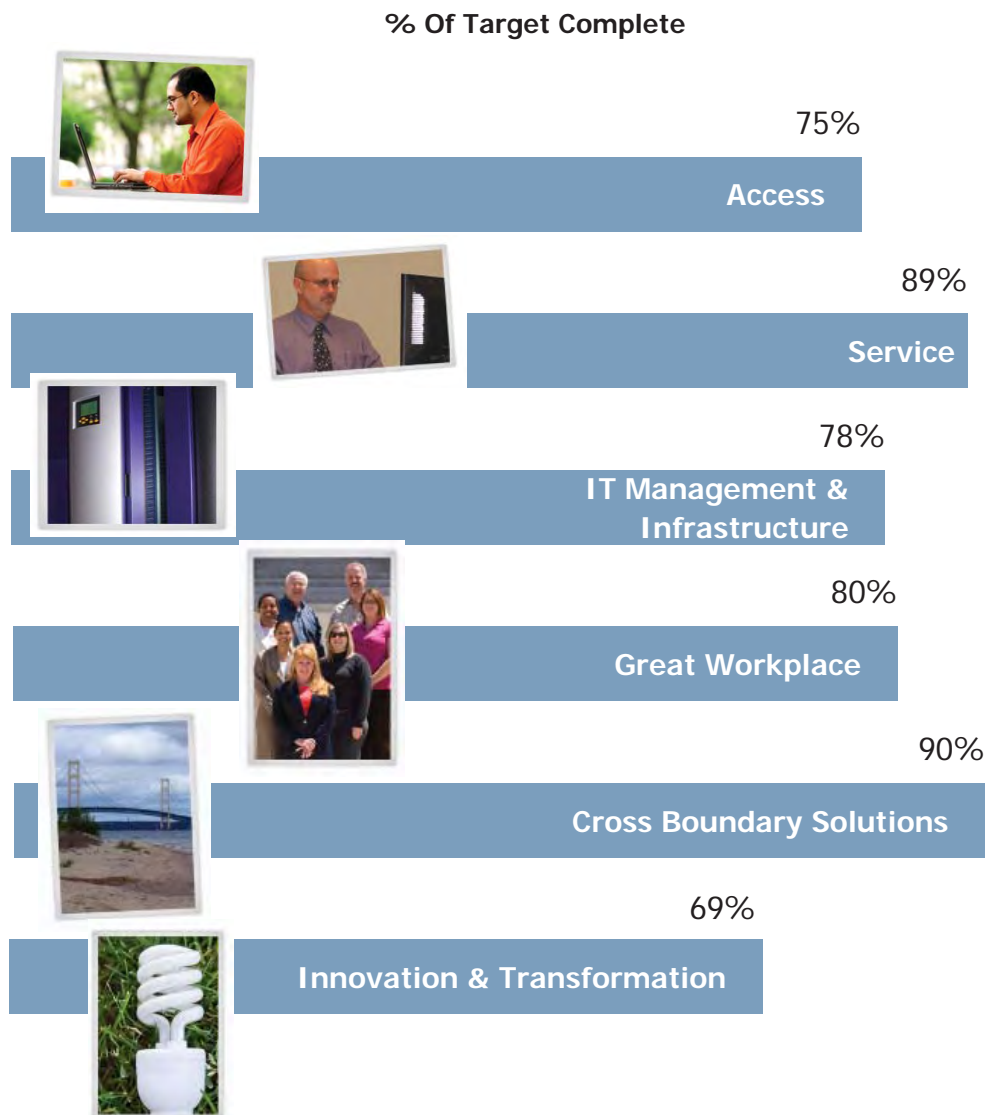
Target Selection Process

Michigan's ICT Strategic Plan and its six goal areas are operationalized through a comprehensive portfolio of targets. Input from several areas was used to determine targets for this planning cycle. Initially, the goal owners and DTMB leadership reviewed all pending initiatives from previous planning cycles and determined which projects should be carried forward as part of the new planning cycle.

Input on agency business needs was provided by the Michigan Information Technology Executive Council (MITEC) through survey feedback. This process for feedback was also conducted during the 2008 planning cycle. In several cases, similar challenges and opportunities still exist. For alignment of targets to business needs for this planning cycle, only 2010 feedback was used. For comparison, the sidebars include a summary of agency feedback from both 2008 and 2010.

Delivering on Our Promises

The chart below depicts the percentage of targets from the Michigan 2008 ICT Strategic Plan that were completed between 2008 and 2010.



Goal One - Access

Provide exceptional services to Michigan citizens and businesses anytime, anywhere

Goal one is about providing opportunities for anyone, anywhere to use our services and information resources. Improving access means increasing our technical capabilities, expanding the number of online services and managing information to enhance our presence in existing online communities. It also means engaging citizens in decision making and delivering services in a manner that protects the privacy and security of every citizen.



Key Strategies

- Provide Michigan citizens and businesses with one simple access point to government services
- Optimize technology to transform how government offers services

Targets

2010

- Expand services to mobile devices for additional access to Michigan services such as providing text alerts
- Expand the use of social networking to reach citizens
- Establish a Web site usability lab to provide software design and testing capabilities

2011

- Continue full implementation of Web 2.0 technologies within www.michigan.gov and help agencies understand potential uses
- Complete expansion of human services internet self-service to add cash, day care and emergency assistance.
- Establish a usability lab to capture public/private input on software usability in design.
- 25% of all projects that serve citizens will include the use of a moderated Wiki to solicit public feedback.
- 25% of all public searchable databases (License look-up etc.) will be rendered for use on any mobile device.
- Implementation of technology standards and development tools that reduce costs to develop, deploy and maintain applications.
- Implement an enterprise credentialing process for all licensed occupation

2012

- Implement a citizen one-stop portal that provides one place for access to government services uniquely tailored to citizen needs based on individual profiles
- Expand the Michigan Business One Stop service to include individual certification and licensing
- Implement an enterprise licensing system.
- Exponentially increase high speed internet access in 300+ statewide public facilities
- Working with local government, aggregate all local community meetings, happenings etc., on a user's personal page on Michigan.gov. This requires looking at the inbound IP address, associating it with a zip code and displaying relevant community events for that zip code

Technology solutions that will help to meet your biggest challenges:

2008

- Collaboration tools
- Web-based services
- Mobile computing
- Geographic information
- Online citizen services

2010

- Web-based citizen services
- Mobile computing
- Enterprise resource planning tool (accounting)
- Data collection and sharing
- Enterprise document management
- Cloud computing

Targets

2013

- Incorporate local government into the Michigan Business One Stop, providing one place for businesses to access state and local government resources
- Leverage cross government applications such as e-Health to provide a consistent common citizen interface.

2014

- Partner with MDOT to develop Intelligent Transportation system information access in vehicles and on personal communication devices

Business opportunities

- Increase use of the Internet
 - self service, transparency, collaboration, reducing paper and increased marketing
- Leverage investment in technology - shared solutions, document management and cloud computing
- Communication and collaboration - internal and external
- Achieve efficiencies - eliminate duplication, automated data collection and process improvement

Goal Two – Service

Deliver efficient and effective technology services and shared solutions

Providing service to our agency partners is a critical success factor for Michigan's Department of Information, Management & Budget. Meeting and exceeding client expectations is accomplished by actively listening and responding to customer needs as well as proactively offering opportunities to share resources, increase government efficiency and improve workflows.



Key Strategies

- Create efficiencies for our agencies that support existing systems
- Improve quality of service and enhance accountability to customers
- Maximize the value of ICT investments

Targets

Ongoing

- Support agencies in developing effective strategies to protect the privacy of data
- Collaborate with business partners to improve the efficiency and effectiveness of Information security planning, including project specific assessments as well as enterprise-wide agency security plans.

2010

- Develop and deploy new enterprise shared services to reduce agency costs and improve effectiveness
- Implement Infrastructure as a Service (IaaS) for private internal storage cloud computing
- Formalize ICT investment planning and management activities
- Further refine the annual enterprise-wide call for projects process to include maintenance activities
- Release the first edition of Michigan Imagery portal, which will allow users to download and view aerial imagery over multiple years and multiple counties
- Release revised application in development with the Michigan Department of Natural Resources and Environment that enables boaters to locate boat launches and harbors
- Roll into production an application for the Attorney General's office that tracks parolees and probationers, providing addresses, last known locations and types of offense

2011

- Implement a new automated call center phone system that provides simpler access with additional self-service functionality
- Implement Computing as a Service (CaaS) for private VM servers cloud
- Implement special project approval and invoices process recommendations generated from the billing project team
- Implement single-citizen-address standard and verification tool for use across state government
- Expand the use of video conferencing arraignments with local courts, the Department of Corrections, and Department of Community Health mental health facilities
- Expand portfolio management to assess value of current investments by reporting on total annual cost of ownership for legacy solutions. Use data for legacy replacement strategy (Report to the agencies total cost of applications including costs for maintenance, licensing, annual support, hosting, data storage, etc.)

Targets

- Prioritize legacy solutions for replacement with a strategy to identify common applications across agencies. Build new solutions once to replace many legacy systems
- Report additional key client usage metrics via intranet views and shared sites
- Develop new methods to automate and standardize agency security metrics to improve the efficiency of collecting and communicating security information
- In coordination with agency Information Privacy Protection Officers and the Michigan Information Privacy Protection Council, provide support to agencies in developing strategies to effectively protect the privacy of citizen data

2012

- Consolidate State facilities to form full service citizen centers
- Develop business analytics to match tax filings and income levels to directly certify families eligible for food stamp assistance
- Create a secure web account for citizens to maintain records of g-to-c transactions. This will leverage personal web accounts already established for UIA and DHS services and allow for push/pull delivery of subscribed reminders (drivers license renewal, sports license filing deadlines, traffic conditions, etc.) This would also be rendered for use on any mobile device.
- Further build out enterprise contact center shared technologies and facilitate strategic planning among agencies to align and leverage business processes focusing on themes such as multi-channel and self service expansion, improved agent performance and customer service, and expand workforce management

2013

- Transform Agency Services resources to a skills based deployment model
- Complete the legacy modernization of applications for the Liquor Control Commission, and the Office of Finance and Insurance.
- Implement phase I of legacy replacement strategy

2014

- Establish mutual aid agreements across government entities to leverage resources, technologies and facilities to streamline government services.
- Complete the legacy modernization of the UA applications

Targets

Goal Three – ICT Management and Infrastructure

Strengthen operations and security through statewide solutions and universal standards

Today, it is more important than ever to be responsible stewards of the state's limited resources. Delivering projects is no longer enough. Over the next five years, we will work to enable even more dependable, agile and leading-edge ICT operations across state government. We will continue to refine our standards and architecture, reinforce our infrastructure and protect our physical and information resources.

Key Strategies

- Continue evolving Michigan's technology standards and architecture to reinforce robust, forward-moving operations
- Utilize best practices in the management of ICT assets, including hardware, software, data, systems and applications
- Provide optimal levels of security and citizen privacy
- Utilize green IT strategies in all infrastructure deployments

Targets

Ongoing

- Improve protection of Michigan's informational assets by strengthening partnerships with federal, state, local and private organizations to minimize the likelihood and impact of information security incidents

2010

- Implement shared resource pools to leverage our resource skills to meet demand for services
- Expand service by implementing an e-mail response management system in the Customer Service Center
- Establish and publish a contracts and procurement service catalog that includes service-level metrics for procurement
- Implement policy framework that encompasses administrative and technical policy
- Implement new audit compliance tools to improve security on a real-time basis
- Reduce storage and backup physical footprint by consolidation of storage arrays
- Implement the new service rate development and status reporting processes
- Work with DTMB partner divisions and offices to develop and enhance processes that reduce risks associated with providing IT services

2011

- Implement server storage vitalization and consolidation
- Standardize the State of Michigan's office infrastructure with the migration of 40,000 to the M/1 platform
- Implement central dispatching statewide
- Incorporate capital asset schedules in the ITAM repository to streamline accounting processes and enhance capability to report on ICT assets
- Complete the development of a comprehensive disaster recovery plan to cover 100 percent of mission-critical applications
- Finalize long-term data center capacity solution



Business/technology solutions to move away from:

- Custom applications where there may be options for consolidating multiple software applications and instances aimed at meeting the same business need across agencies (such as version-control software)
- Stand-alone technology solutions for common business areas to a shared services model
- Legacy systems
- Manual transactions

Targets

- Desktop Virtualization Solutions Assessment and Pilot
- Establish self-service portal for IT support issues for DTMB clients
- Migrate 70% of end-of-life servers to a virtualized infrastructure
- Deploy compliance tools for critical applications server infrastructure
- Reduce storage and backup physical footprint by migrating all data to virtualization capable storage infrastructure
- Deploy de-duplication technology for further reduction of data both for primary storage and backups
- Enhance Disaster Recovery (DR) Lab capabilities and processes to implement DR testing of critical applications by prioritizing applications and testing of DR plans of critical applications and conduct high priority DR tests

2012

- Standardize the State of Michigan's office infrastructure with all agencies migrated to M/1 platform
- Implement a self-service portal at the Customer Service Center
- Implement strategic staff sourcing for technology projects
- Implement a universal identity and access control solution that integrates facility, network and system access
- Expand deployment of compliance tools for remainder of the production applications server infrastructure
- DR testing of critical applications, establish schedules and conduct DR testing for all critical applications
- Implement software as a service (SAAS) for telecom wireless and wireline invoice review and payment and make service available at a the enterprise level to client agencies

2013

- Improve our system development processes to achieve CMMI Level 3 compliance enterprise-wide
- Consolidate to a single e-mail platform
- Implement an automated PC Power Management System
- Expand deployment of compliance tools for all applications server infrastructure
- Develop a single DTMB Information Technology Services invoice delivered via the State's accounting system

2014

- Completed Desktop Virtualization project
- All state employees will be converted to VOIP technology
- Establish a state network capable of handling Intelligent Transportation System data from 1 million vehicles daily statewide without degradation
- Establish a state network capable of displaying any SOM security video statewide from any state operations center without degradation

Appendix B

Targets

Goal Four – Great Workplace

Foster a great place to do great work

Government technology is a rapidly changing landscape. To succeed in serving agency partners and customers, we must attract and retain the best talent by consistently striving to provide an engaging and stimulating workplace. This includes offering employees meaningful work, professional development and expanded career potential while instilling pride and a commitment to the work they do.

Key Strategies

- Recruit, retain and recognize a diverse, high-performing technology workforce
- Establish standards and procedures that require and equip a high-performance workforce
- Support, enable and help drive Michigan's ICT plan goals and strategies through our ICT workforce
- Support a culture in which employees take pride in and responsibility for delivering exceptional service



Targets

Ongoing

- Develop and implement a security awareness program that complements the state's policy and technology initiatives

2010

- Implement the third release of Next Generation Laptop software to support Michigan's mobile workers
- Develop and implement the DTMB Virtual University, a single and centralized source of professional development, focused on the technical skills, for employees
- Design and implement a diversity program to improve the culture of the agency and leverage the diversity of staff as an integral factor in organizational success
- As part of the strategic workforce plan identify and implement initiatives designed to address short-term staffing projections and organizational needs
- Develop and implement a comprehensive on-boarding program

2011

- Support the State of Michigan's mobile workers by providing data encryption for all 12,000 notebook users
- Develop web pages that promote employment with the State of Michigan as an employer competitive with the private sector
- As part of the strategic workforce plan implement long-term initiatives designed to prepare and enable the organization to deliver services to all clients taking projected staffing and economic changes into account
- Partner with Civil Service to modernize and standardize the classification structure for ICT professionals to support, attract and retain a high-performing ICT workforce. Complete changes to the ICT specialist classification
- Enhance the State's security awareness program to include awareness components for both customer agencies and internal DTMB partners

MITEC member feedback

- It is important that we find ways to move closer to the leading edge of technology.
- Embrace a cross-agency focus. There are areas where centralized ICT could have a huge impact on improving processes and efficiency.
- Further develop enterprise standards and reusable solutions across department boundaries for future development. Determine how to share solutions better, eliminating the need to develop and maintain multiple systems, such as a single customer data base
- With limited resources, we need to determine how to focus efforts for maximum return

Targets

2012

- Actively use the college placement services interview program to be a competitive presence at university and college interview sessions held prior to students getting their degrees
- Develop and implement a program for reskilling managers to lead using emerging organization and work styles. Examples include matrix and distributed teams, community and collaborative work styles, mobile workforces, and unstructured work process

2013

- As part of Michigan's mobility strategy increase the opportunity for employees to telecommute by 30 %

Goal Five – Cross-Boundary Solutions

Accelerate partnerships across and beyond state government

Michigan is fully engaged in using technology as a change agent for cross-boundary innovation. Whether through a local and state cross-boundary technology steering committee, a network of health care professionals or a group of vendor partners, we identify and solve difficult issues across organizations. We will continue to expand this network of partners and identify new initiatives to help Michigan and our partners deliver better services to customers and citizens.

Key Strategies

- Create innovative public partnership programs for more effective and efficient government across all levels
- Strengthen and expand partnerships beyond government to the private sector and higher education
- Leverage existing and emerging ICT infrastructure and functionality across the state
- Expand health information technology and health information exchange programs and partners

Targets

Ongoing

- Improve protection of Michigan's informational assets by strengthening partnerships with federal, state, local and private organizations to minimize the likelihood and impact of information security incidents

2010

- Expand the Interoperability Gateway Network to support a strategic technology reserve and enhance system monitoring.
- Develop a geospatial business plan to help reduce costs and create efficiency Enable real-time mash up between state and local government as well as private sector information
- 2011
- Develop interfaces to connect the DCH Health Information Systems to the State of Michigan Health Information Exchange (SOM HIE) and the Michigan Health Information Network (MI HIN), allowing the sharing of information in and out of these systems
- Facilitate the addition of several thousand new radios by agencies that were awarded Public Safety Interoperable Communications grant money
- Complete development and facilitate approval of a comprehensive rebanding plan for the MPSCS

2012

- Support completion of the MPSCS Urban Area Security Initiatives (UASI) for improving interoperability in southeast Michigan
- Upgrade the MPSCS to add wireless broadband data capabilities and integrate more advanced simulcast systems
- Implement Bing Maps Ultimate licensing agreement to enable all Michigan governmental units to use BME in any official Internet mapping application without limits to users, transactions or applications to extend through May 2012
- Create a secure "cloud storage" for environment criminal justice, that meets CJIS requirements and is available to State, county and local criminal justice agencies



Our targets develop out of our guiding principles

- Effective and efficient customer-based operations and services
- Performance, accountability and public value using measure
- Privacy, transparency, security and public trust
- Well-supported and engaged workforce
- Agile management and infrastructure
- Shared solutions, standards and flexible, open boundaries
- Maturation and modernization of solutions
- Innovation and transformation

Targets

2013

- Expand data transmission and sharing capabilities using MPSCS-delivered wireless broadband technology
- Implement Automatic Vehicle Locator (AVL) and person locator technology

2014

- Support completion of 911 dispatch center consolidation projects for the Michigan State Police and local public safety agencies
- Complete a new multi-State version of the successful MDOT FieldManager system along with AASHTO, a multi-state consortium of Transportation Officials.
- Develop a financial framework to support state and local shared IT services including broadband and shared facilities

Targets

Goal Six – Innovation and Transformation

Drive innovation and technology to transform Michigan government

Together with our agency partners, we are rethinking technology and processes and challenging the status quo. In collaboration with the public and private sector, we will make both small and large-scale modifications and improve service delivery and availability. This effort will drive a systematic approach to innovation and transformation.

Key Strategies

- Realize customer needs and build a culture supporting change, innovation and excellence among employees and partners
- Develop governance, change and portfolio management processes and standards to support, enable and drive the transformation of existing and the development of new services
- Employ best practices to improve government services through information, communications and technology



The creation of the Department of Technology, Management & Budget (DTMB)

"We are continuing to reform, restructure and streamline state government. This merger reflects the enormous role of technology in streamlining government and serving our citizens. By combining these departments, we are building on our work of pursuing every efficiency."

Governor Jennifer M. Granholm
2010 Budget Address

Targets

2010

- Implement a cloud computing strategy that makes services more accessible and reduces cost
- Foster a culture of innovation and thinking from the customer's perspective and, through practices such as job shadowing, become routinely involved in customer activities, getting to know their business needs first-hand
- Pilot hoteling for state employees
- Pilot the concept of State, local government and school districts sharing/leveraging existing networks throughout the State
- Assess and develop a transition workplan
- Establish ARRA investment leveraging and momentum strategy across State and local government
- Establish an Innovation and Performance Management Program, including enterprise issue and performance assessment and solution targeting metrics
- Establish an Enterprise Information management and Analytics Program
- Initiate a biennial Michigan ICT Grand Challenge Invitation for Solutions to citizens, academia and the private sector

2011

- Refine enterprise architecture and the information architecture capabilities to support innovation and transformation
- Develop the Michigan Information Framework, integrating business intelligence and other related initiatives and refine information architecture
- Establish formal performance tracking and monitoring capabilities to ensure transparency, identify and manage change opportunities, and report on and manage performance
- Further expand the hoteling pilot for state employees utilizing State buildings.
- Further expand the use of shared networks
- Develop first DTMB strategic plan, including enterprise streamlining recommendations
- Develop ICT, technology and science alignment framework and work plan for NEP
- Develop two tiered – enterprise and statewide - smart computing framework for

Targets

enterprise and statewide initiatives: broadband, health IT, intelligent transportation, smart buildings, public safety, smart cities as a composite, energy and the smart grid, other utilities, fresh and waste water management systems, shared 'green' programs.

- Develop a multi-year, multi-source and partner ICT funding model
- Integrate the use of information, knowledge and intellectual capital as content, service and as part of communications process
- Expand use of automated security technologies (e.g. IPS, DLP, Content Filtering, etc.) to improve the effectiveness and efficiency of cyber security protections

2012

- Begin efforts to share project management capabilities with local governments
- Formalize ICT investment planning and management in the project, portfolio and change management processes
- State ICT Strategic Plan, including Digital Productivity, Prosperity and Quality of Life Goals
- Conduct second Michigan ICT Grand Challenge Invitation for Solutions
- Establish a Michigan Smart Cities consortium, including private sector partners
- Integrate public / private and regional smart computing strategies with partners
- Implement a multi-year, multi-source and partner ICT funding model
- Share project and performance management capabilities with local governments, including streamlining solutions
- As it relates to ICT security automate the configuration and reporting of compliance with federal, state, and industry requirements

2013

- Establish a statewide smart cities support model and select partners for Michigan Smart Cities pilots

2014

- Facilitate the consolidation of IT operations of school districts
- Establish a multi-state regional disaster recovery center
- Digital Productivity, Prosperity and Quality of Life Goal progress assessment
- Third Michigan ICT Grand Challenge Invitation for Solutions

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Appendix C | Technology Solutions

Technology Solutions

Michigan's Technology Solutions

Exploring the Technology Possibilities: 2010-2014

Michigan's IT strategic planning process has consistently included evaluation of reported research and review of new technology developments. This segment of the plan includes an assessment of a full range of current and emerging technologies feasible and appropriate for state implementation.

Our assessment has been accomplished through information gathering from a variety of sources – from thorough review of research papers by objective analysts such as Gartner Inc. and Forrester Research Inc. to one-on-one sessions with experts offering advice for Michigan-specific implementations. The findings and recommendations of this process are presented to Michigan's IT decision makers who work with the Michigan Information Technology Executive Council (MITEC) and other stakeholders to determine the state's technology focus for the coming years.

As the State of Michigan builds its strategic plan to include emerging technologies, other initiatives are ongoing. A green technology approach, for instance, is incorporated across state IT. Gartner states that organizations that previously committed to carbon footprint reductions will need to factor these into revised business plans for 2010 and beyond.

Streamlined Citizen Transaction and Self-Service

Identify and implement the latest technologies to make government services more accessible to citizens and businesses.

A key focus of this solution is the creation of a true "e-government," where all citizens can access the government services they need quickly, efficiently and securely. This approach emphasizes single points of access to government services through multiple channels and a continuing commitment to making e-government services faster and easier to use.

Many citizens expect on-demand self-service options when doing business with state government. This expectation will only increase with the accelerating use of technology as the primary tool for social and business connection.

These new citizen demands are not just focused on online services. Self-service is increasingly common in other parts of our daily lives. Whether it's using an ATM to get cash at midnight, checking in for a flight at a kiosk or paying for gasoline at the pump, self-service is an increasingly vital way to do business.

Just as in the private sector, Michigan citizens will continue to demand that their government provide them with convenient, cost-effective and secure service around the clock.

Green IT activities bring concrete, measurable cost reductions and thus will become more broadly adopted in enterprise IT organizations.

– Forrester

There are more than 65 million active users currently accessing Facebook through their mobile devices.

– Gartner

By 2012, Facebook will become the hub for social network integration and Web socialization.

– Gartner

Eighty-two percent of U.S. online adults say they regularly engage with social technologies. Twenty-eight percent of these consumers, for instance, report visiting a social networking site at least daily.

– Forrester



Opportunities for Michigan

- Better service for citizens

The desire by public agencies to provide information and services on the Internet opened a way for Americans to contact government that was not available a decade ago. Citizens benefit from increased access, whether they live in the Upper Peninsula or Detroit, work 8 to 5 or the graveyard shift, or use their home computer or a laptop at a state park.

- New cost savings

As Michigan continues to wrestle with tight budgets, streamlined citizen transaction and self-service can promote cost savings by less employee involvement. E-government efficiencies can also enable the state to cope with its smaller workforce.

Current Status

The State of Michigan offers a variety of self-service options. Citizens can access services using the Internet from their homes, a wireless device remotely, or a kiosk in a public plaza. Examples of some available state services include:

- renewing driver's licenses and registering vehicles using kiosks.
- reserving campsites online.
- obtaining fishing licenses via mobile phone.
- arranging for permits online.

One of the major challenges for government is to understand how citizens use services in order to increase their use of online services. It's not enough to drive citizens online. Government must adapt its internal processes and overcome its traditional structure to allow for interagency and interagency collaboration.

Another challenge is that moving toward self-service requires an infrastructure that supports electronic payments. While this can bring cost-savings – both from efficiencies and per transaction – it also means investing in solutions and processes with a high level of security.

Next Steps

There are many opportunities to expand citizen access to state government services in various stages of development, whether it is in the vision stage or in the process of implementation. Examples include the expansion of the Helping Hand Portal or the College Access Network. Both of these will provide more efficient and effective service to citizens, while reducing the cost to provide these services.

Citizen transaction and self-service will grow in the coming years. Michigan is pursuing technologies that enable self-service, including centralized contact centers, self-service stations and online Web portals. As technology advances and can handle more complex interactions, more constituents will be comfortable using technology as their primary point of contact.

DTMB is working with its client agencies to explore which projects would benefit most from these technologies to improve productivity and efficiency.

Technology Solutions

The 2007 Brown University annual analysis of U.S. e-government found that Michigan was a leading state in effective governmental use of Web-based technology

Citizen Engagement Tools

Identify and implement the latest technologies to engage citizens in government operations and decision making.

A key IT challenge around citizen engagement is selecting secure interfaces that will improve end-user experiences and provide the state with meaningful citizen participation, leading to better decision making. Other challenges include maintaining control of information and security and retaining knowledgeable staff to manage outreach and engagement efforts.

The Web has opened endless possibilities for engaging with the public; however, the benefits of using the Web for citizen-government interaction have not been clearly documented. Some changes are measurable and evident, such as the recent shift from service-oriented architectures to Web-oriented architectures. Governments are exploring the use of social networking to receive and provide information to citizens.

Opportunities for Michigan

- Building public trust

By providing information, asking for opinions and meeting with people in their own communities, government increases its relevance and can develop the public's trust by being open and inclusive.

- Shaping policy

Through the use of surveys, social networking sites or wikis, government can gather comments on proposed laws or work with citizens to cooperatively develop policy, leading to better decision-making. Using the Web for broad-reaching e-government efforts can boost citizen engagement in the democratic process.

- Gathering service feedback

Agencies and citizens can use ratings or social networking sites to provide feedback on service levels and comment before services are designed. This will lead to a broader range of choices and targeted services for citizens.

- Promoting government services

Web 2.0 technologies offer new opportunities to expand government's reach. For example, collaborative tagging is the practice of cooperatively managing tags that allow citizens to create new associations and ways to navigate government information and engagement efforts.

Current Status

Michigan has several existing citizen engagement tools, including survey software, RSS feeds and a social networking presence.

Through past efforts to improve accessibility, expand delivery channels, share data across governmental agencies and engage the public, the Web site underwent an overhaul to sharpen and broaden the scope of its online services and improve ease of use. Visitors to the site can now access a significant amount of information without even leaving the home page.

Next Steps

Citizen engagement is an ongoing effort because technologies and the needs of citizens are always changing. We will continue to make sure we are using technology to do everything we can to reach out to citizens through safe and accessible channels.

Technology Solutions

Shared Technology Infrastructure

Share and integrate infrastructure resources between public and private partners, such as data centers, servers and connectivity through fiber, wireless and other communications capabilities.

Prior to the formation of the Department of Information Technology, information technology in Michigan was developed independently in the various state agencies. As the agencies made individual decisions of technologies to use and how to maintain or upgrade them, the statewide technology infrastructure grew increasingly complicated. This diverse infrastructure of computers, telephones, information storage devices and computer programming methods prevented Michigan from realizing the optimal value of information technology.

In recent years, Michigan has worked aggressively to build a unified technology infrastructure that is well coordinated, interoperable and universally available. For state government, a shared technology infrastructure is steadily evolving as the primary structural foundation that links and empowers all operations.

Opportunities for Michigan

Through a shared technology infrastructure, the benefits are many. Some of them include:

- Seamless information accessibility
- Improved return on investment
- Reduced operations risk
- Lower cost of ownership
- Technology resource maximization

Whether it is providing a one-stop call center for citizens to access state services quickly and securely or giving state employees collaboration tools like real-time, online meetings to reduce travel time and cost, a shared technology infrastructure is delivering the promises of tomorrow for Michigan.

The State of Michigan realizes immediate benefits, such as cost savings and service improvements. It also benefits because future technology applications will require a modern, integrated infrastructure. Some future opportunities that will build on the integrated infrastructure include:

- Contact centers: An enterprise contact center strategy, in which Michigan citizens can contact state government using convenient channels, relies on standard phone and computer systems. State employees at various physical locations will be available to address citizens' needs at the end of a phone or click of a computer mouse. To truly function as one face of government, those employees' phone and computer systems must be able to communicate effectively using standard technology system designs.
- Unified communications and messaging: As citizens increasingly turn to alternative communications channels such as e-mail and Web access, state employees will need the ability to respond simultaneously with various media. Standard interoperable technologies will enable employees to monitor and use telephone, e-mail and Web interfaces as easily as traditional face-to-face interactions.
- Virtual teams: Government employees will need to collaborate across agencies and locations to efficiently deliver the services citizens demand. The technology tools that allow these employees to share data and information will require an integrated infrastructure that links all agencies statewide.
- Great Lakes Information and Technology Center: The state is pursuing a public-private partnership to replace two hosting centers with a purpose-built center. The plan envisions a public-sector cloud that would offer application hosting and managed services to any public entity in Michigan. This initiative would cut the cost of running government by reducing the number of duplicate computer systems operated by cities, counties and state agencies.

Technology Solutions

Current Status

Michigan continues to build its comprehensive approach to shared technology infrastructure on many different levels within state government. Two initiatives in particular are driving Michigan's overall strategy:

- Centrally managed voice systems

Providing central management of voice systems throughout state government enables economies of scale in the purchase of equipment and provision of support to state telephone systems. A consistent implementation of telephone systems across agencies allows systems to work together, ensuring that call and voicemail transfers are seamless. Finally, central management of voice systems provides an opportunity to move the state's system forward with new telephone technologies, such as Voice over Internet Protocol (VoIP), that provide the foundation for contact centers, mobile workers and many other trends for how government does business.

- Michigan/1 program

Michigan/1 is a vision for the baseline infrastructure of the state's computing environment that merges separate agency environments into one, resulting in reduced costs and improved services. Program components include:

- Active Directory Office Platform Technology (ADOPT): Provides a common technology setup for offices across the state, including standardized computers and the capability to update or fix computers remotely
- Messaging consolidation: Brings all state e-mail users into one of two common e-mail installations and redesigns all state e-mail infrastructure for optimal cost effectiveness
- Storage/backup: Provides shared solutions for storing the state's data and protecting it with backup procedures
- Hosting center server centralization: Consolidates data centers across the state in three state-of-the-art centralized data centers
- Enterprise metrics monitoring: Tracks state systems automatically, alerting staff when repairs are necessary
- Call Center Consolidation

Next Steps

Michigan will continue to explore new opportunities for shared infrastructure between state agencies and in collaboration with other public and private partners. With state government, key continuing initiatives include:

- Michigan/1 Adopt standardized complete rollout by the end of 2012
- Conversion of 75 percent of all state offices to Voice over Internet Protocol (VoIP) technology by 2012
- Unified approach to communication and collaboration tools
- Continued data center consolidation
- WiFi available to all state locations in 2010
- Central management of all cellular contracts in 2010
- Physical to virtual server migration/consolidation in 2010

Technology Solutions

Information Collaboration and E-Discovery

Facilitate the sharing and integration of data among departments to leverage information and to enable quicker and more effective decisions; effectively manage the storage, preservation, and retrieval of electronic information as it relates to governmental operations.

The State of Michigan's executive branch consists of several separate departments and multiple agencies. Core services include those that directly benefit constituents and include policy and program development and administration as well as actual delivery of services. Common administrative services include those needed for government to function, such as finance, human resources and procurement.

Over the past decade, these disparate departments have begun to interact and collaborate on projects, initiatives and policy direction. Driven by statewide priority areas, all state departments have come together to work toward a statewide vision of goals.

Breaking down old barriers between government agencies has greatly increased the need for common methods of communicating, sharing and bringing information to decision makers. Through overall advances in information technology – and as Michigan develops its own unified approach to information access and collaboration services – departments and agencies will better understand which information is available and be able to get the information they need when they need it. Having a coordinated strategic approach will enable state leaders to make timely decisions using better information.

Additionally, recent changes to the Federal Rules of Civil Procedure governing standards for managing electronically stored information and the increasing number of lawsuits related to discovery of government information require the development of a legally constructed and consistent enterprise-wide approach to e-discovery.

Opportunities for Michigan

The potential benefits to Michigan from increased data sharing, integration and a consistent e-discovery protocol are many and include:

- Improved communication: For the State of Michigan, one of the most important benefits of integration is the improvement of communications among departments, agencies and even workers within their own agency.
- Improved decision making: As a direct result of improved communications and up-to-date information access, key managers and personnel will be able to make proactive and reactive decisions faster and more accurately.
- Enhanced service delivery: Across the spectrum of involvement within state government, the ability to easily access reliable and accurate information is essential. By sharing across programs, agencies and even other governments, the State of Michigan will have better information to use in providing improved service to the citizens, businesses, governments and the employees it serves. A coordinated and enterprise-wide system for e-discovery will enable Michigan to respond quickly to meet judicial requirements and avoid sanctions.

Current Status

Already, Michigan is actively engaged in improving information access and collaboration. Some notable examples of the state's progress include:

- Teradata Warehouse: Among five state agencies, the State of Michigan shares more than 2 terabits of information, which equates to approximately one-tenth of all the books in the largest library in the world.
- Child Support Enforcement System: Agencies continue to develop data-sharing agreements for projects that involve multiple agencies. One key example is the Child Support Enforcement System, which shares information among the Department of Treasury, court systems, Department of State and Department of Human Services to ensure that child support payments are made on time.
- Michigan Health Information Network: The State of Michigan has placed a priority on its goal

Technology Solutions

to use information technology to drive quality improvements and efficiency in Michigan's health care system. This effort will allow sharing of information among public and private entities to improve patients' healthcare.

- Direct certification for school lunches: By cross referencing data from the Department of Education to food-stamp eligibility data, children from eligible households are now being directly certified for free school lunches. This not only improves children's access to this vital service, but it reduces processing time and costs.
- Standardized and automated HR functions: This effort creates new time and cost savings through a unified approach to managing the state's human resources.

Next Steps

In cooperation with the Michigan Information Technology Executive Council (MITEC), DTMB continues to examine the feasibility of implementing shared information and services throughout the state. Key areas for growth have been identified and include:

- Procurement: Improved automation and identification of the state's aggregate demand for negotiation leverage.
- Inventory management: Greater transparency of capitalized and expensed assets, including facilities and maintenance, repair and operations items.
- Budget development, tracking and sharing: Various operational modules can be tied to a budgeting module for more timely management with fewer errors caused by redundant data entry.
- Enterprise architecture: The DTMB Enterprise Architecture Plan establishes an enterprise-wide approach to information management. The plan defines the steps to be taken over the next several years. These steps include defining owners for all information entities, creating cross-agency policies for data sharing, developing an open document strategy and providing common data standards for all agencies.
- Document Management Strategy Team: The development of a cross-agency team will provide guidance and continuity for enterprise content management initiatives statewide (including electronic image and document management tools). The team's strategy will address existing practices, future projects, technology considerations, records management requirements, technology standards, business process best practices, overall assumptions and solutions. A special e-discovery task force will work with this team to identify how electronic content management tools can assist with discovery of electronically stored information.

Technology Solutions

Enterprise Mobility

Utilizing technology to connect state employees to their work anywhere at anytime from anyplace. Projects include infrastructure and application access improvements with the adaptability of being scalable for multiple applications to meet specific business needs.

In "The World Is Flat," Thomas Friedman points out that intellectual work and intellectual capital can be delivered from anywhere. Forrester Research Inc. defines enterprise mobility as the ability for an enterprise to communicate with suppliers, partners, employees, assets, products and customers, irrespective of location.

Mobility incorporates devices (laptop, notebook, form-factor devices supporting mobile line-of-business applications, cell phone, PDA, USB memory stick, CD, Palm, MP3 player, smartphone, laptop, iPod, camera); connections (Bluetooth wireless, virtual private networks, wireless LAN, WLAN, mesh, WWAN, high-speed Internet access); applications (e-mail, information retrieval, data transfer); security (secure socket layer SSL) and communications (VoIP, Unified Communications). Other trends are expected:

- By 2014, more than 3 billion of the world's adult population will be able to transact electronically via mobile or Internet technology. By 2013, mobile phones will overtake PCs as the most common Web access device worldwide (Gartner).
- Mobile and virtual work environments are rapidly replacing centralized and face-to-face work environments (Gartner).
- Many information workers are working remotely as 41 percent of U.S., Canadian and U.K. information workers report telecommuting at least part time. Forrester expects this number to grow rapidly in the coming years, projecting that in the U.S. alone, 43 percent of information workers will work from home at least some of the time in 2016. These mobile employees – disconnected from colleagues as they work outside of headquarters and branch offices – drive the use of collaboration technologies as well as the use of devices like laptops and smartphones, which afford flexibility (Forrester).

Opportunities for Michigan

Around the globe, companies are implementing mobility solutions to increase employee productivity, improve customer responsiveness and ensure data protection for regulatory compliance.

Telework benefits the employer, employee and community. For the employer, it increases productivity, reduces overhead and occupancy costs, helps recruit and retain good employees, improves attendance and increases efficiency through advanced technology. For the employee, it increases productivity, promotes job satisfaction, reduces commuting time, reduces transportation expenses and improves quality of life by providing more family and personal time and less stress. For the community, it decreases traffic and highway congestion, lessens parking problems, decreases air pollution, reduces energy consumption and increases time for civic involvement.

DTMB and MITEC recognize the importance of mobile worker technologies in the accomplishment of enterprise-wide business goals. Specifically, this technology will enable the State of Michigan to gather field data electronically, provide on-site services directly to businesses and citizens and improve working conditions for employees in rural areas.

Opportunities for mobile worker technology abound in the State of Michigan, enabling the state to be closer to its citizens and reduce costs. Some state government positions that can benefit from include:

- Maintenance and repair workers
- Call center staffs (virtual call center)
- Licensing and regulatory employees
- Field inspectors
- Electronic medical information

Gartner contends that the PC will be overtaken as the primary computing device used by customers and employees. Web sites and portals will need to be redesigned to allow access from mobile devices.

In a world where travel is scaled back and telecommuting is becoming more popular, businesses naturally invest in technologies such as Web conferencing and instant messaging. By 2013, total penetration of these two technologies should reach 77 percent and 71 percent of firms, respectively.

– Forrester

Technology Solutions

- Remote account representatives to verify business information
- Continuation of government services in the event of natural or man-made disasters

Current Status

Current application of mobile technology in Michigan state government is as varied as the different functions government serves. For instance:

- Inspectors from the Bureau of Construction Codes perform on-site inspections using rugged laptops. Inspectors are able to log in at home before coming to work in the morning to upload yesterday's inspections and download their current day's permits
- Michigan State Police officers can access various criminal justice computer systems from wireless laptops in their vehicles
- Unemployment Agency investigators can document investigations while in the field and upload changes to the main computer systems from their homes every night

Next Steps

As the explosive growth in mobile technologies continues, a key challenge for Michigan will be the quick assessment of the usefulness of these technologies in helping the state better serve citizens. To prepare for that challenge, Michigan is embarking on a number of new strategies:

- Developing and implementing a Enterprise Mobility and Access Strategy (included on pages 11 and 12)
- Developing an integrated network strategy that offers manageability, security and connectivity across myriad networks and devices
- Incorporating mobile technology in overall IT strategies and policies and considering mobile devices as part of the state's telephony strategy
- Improving the delivery of health and human services by lowering overall costs, improving technology and streamlining the way work gets done
- Incorporating the ability to communicate and share information with cities, counties and other states

Technology Solutions

Enterprise Mobility and Access Strategy: Employee Mobility

Over time, more employees will transition to a mobile worker or telecommuting environment with only an occasional need to use facilities for office space, meeting space or clerical functions such as printing or making copies. This strategy addresses the distinct and diverse facility and technology needs of state employees as well as opportunities for improving service delivery and lowering costs. Success will rely on equipping employees with job-specific mobile technology and optimizing facility and infrastructure utilization.

Goal: Deliver greater employee effectiveness and efficiency while consolidating state facilities and lowering the cost of government.

Tools and Facilities Needs: Based on needs, employees would fall into a category, as follows:

Off-site Worker

Not required to be on site (e.g., full time telecommuting)

Examples:

- Data entry
- Monitoring
- Call center
- Other independent workers

Mobility Tools:

- Cell only
- Notebook PC

Facility:

- Office space less than one day a week

Mobile Worker

Providing direct service to clients outside the office

Examples:

- DNRE conservation officers
- State police
- DHS caseworkers
- DCH health care representatives
- MDA or DELEG inspectors

Mobility Tools:

- Cell only
- Notebook PC
- Wireless broadband

Facility:

- Office space less than two days a week

On-the-Go Worker

In meetings for significant portions of the day

Examples:

- Executives
- Liaisons

Mobility Tools:

- Cell only
- Notebook PC
- Wireless broadband

Facility:

- Office space five days a week

Office-based Worker

On-site office-based services

Examples:

- UIA employees
- Michigan Works employees
- Others who interface with citizens at a state facility

Facility:

- Office space five days a week

Technology Solutions

Creation of Service Centers for Off-site, Mobile and On-the-Go Workers: A set of geographically diverse, strategically placed centers could be created for use by state, local and federal level government workers (especially outside the Lansing, Detroit or Grand Rapids campuses) to support off-site, mobile and on-the-go employees. The facilities would come out of the underutilized state facilities pool and would be secured, energy efficient, handicap accessible with 7x24 access. The centers would offer services such as:

- Business Center
 - Hoteling office space, some with PC equipment
 - Network connectivity
 - Conference rooms including audio/video services
 - Presentation equipment
- Copy Center
 - Copier
 - Print capabilities
 - Fax
- Administrative Services - office support and supplies
- Vehicle Services
- IT Support

Targets:

- Reduce the number of state facilities 10 percent annually over the next five years
- Increase the number of off-site workers by 10 percent annually over the next five years

Citizen/Business Government Access and Self-Service

This strategy is an effort to provide government services regardless of jurisdiction (e.g., state, local or federal government) to citizens from easily accessible and consolidated (in some cases mobile) facilities. It seeks to promote the use of citizen self-service.

Goal: To reduce the cost of government by driving the adoption of self-service among citizens and businesses and reducing the number of government-owned buildings.

One-stop Government Service Centers: In an energy-efficient, handicap-accessible center with extended hours of service, a number of services and methods would be employed. Service providers would include:

- Department of State
- Unemployment Insurance
- Michigan Works
- Human Services
- Community Health
- Corrections – Parolee check-in

Various methods of providing services would be used, including:

- Face-to-face interaction
- Kiosks
- Access to call center help desk
- Computers with access to state services
- Mobile offices in specific locations on scheduled dates and times

The facilities would also serve as satellite locations for off-site, mobile and on-the-go workers .

Technology Solutions

Targets:

- Reduce the number of state facilities by 10 percent annually over the next five years
- Move 10 percent annually of state services from a manual process to a citizen self-service approach
- Increase the number of local/federal entities in this facility by 10 percent annually

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ICT Planning Process

Michigan's Statewide ICT Planning Process

The Governor's Initiatives

Each year, the Governor establishes broad initiatives in the State of the State Address. These initiatives become the priorities that guide the executive office, the budget office and every agency of state government. Over the year that follows, the Governor promotes this agenda through the development and tracking of programs stewarded by department directors. The Governor and the cabinet will also work with the legislature to put needed changes into law.

Agency programs are created to carry out the Cabinet Action Plan (CAP) goals, which are monitored through a project tracking system called MiPLAN. This Web tool is accessible to all program owners who provide program updates on a regular schedule. The Governor and the Cabinet members review program progress monthly and make in-course adjustments as necessary. More information on the CAP can be found at michigan.gov/cabinetplan.

State government has faced difficult challenges since 2003, when major changes in Michigan's manufacturing industry changed the state's economy. In 2009, this crisis jumped to an unprecedented level, leaving no sector of Michigan's economy untouched and deeply influencing how state government provides services. With revenue decreasing and demand for services increasing, the administration recognized that effective, long-term strategic planning was the driver for Michigan's transformation.

Since 2003, the cabinet planning process has been continually refocused to account for the unprecedented challenges to Michigan's economy. For 2010, the focus has moved to three priority areas related to job creation:

Diversification

- Governor Granholm's continuing effort to remake Michigan's economy

Creating a Well-Educated, Highly Trained Workforce

- Doubling the number of college graduates and giving every person the tools for success in the 21st century economy

Protecting Michigan's Citizens and Their Pocketbooks

- Safeguarding the physical and financial well-being of every Michigan resident—particularly the most vulnerable citizens

While these three priority areas make sense in 2010, the planning process is designed to remain flexible enough to respond rapidly to changing socioeconomic conditions while maintaining the integrity of Michigan's overall strategic direction.

Cabinet Action Planning

Since the beginning of the planning process, DTMB has been a resource to the Executive Office, working with each cabinet agency to align key agency business goals with the state's priority areas. We assist with updating and maintaining priority initiatives in MiPLAN and creating reports used by the Governor.

This statewide portfolio of business initiatives is a group of measurable actions taken by executive branch agencies that move the state toward established goals. The CAP guides Michigan and makes state government more efficient, responsive and accountable.

In summary, the CAP process ensures that initiatives are aligned with the state's mission,



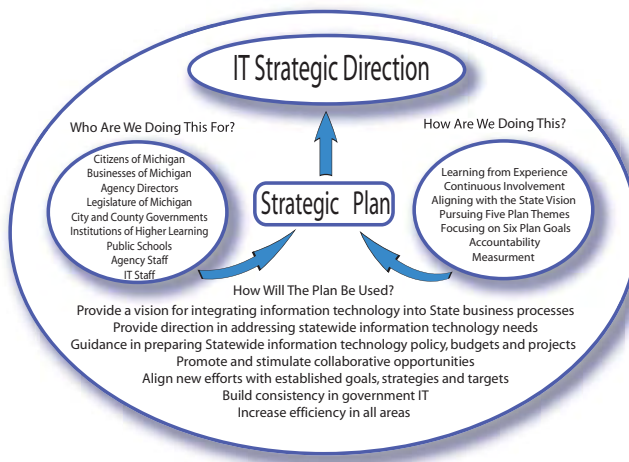
ICT Planning Process

vision and values (both statewide and departmental), gubernatorial long-term priority areas and budget constraints.

Michigan's ICT Strategic Plan Process

The cabinet action planning process is the foundation of Michigan's ICT plan. We build on this foundation through internal and external planning at the enterprise level and implement client solutions based on the comments, recommendations and feedback garnered through various exercises, planning events and surveys. We develop the plan's strategies to provide appropriate and cost-effective solutions that reflect individual agencies' immediate needs while focusing on solutions that can be leveraged across the enterprise.

Michigan is on the fourth iteration of a multiyear planning process. For a complete picture of the process since 2003, visit the **2008 Strategic Plan Appendix A**.



The 2010 Planning Process – The DTMB Executive Team owns the 2010 strategic planning process, and the DTMB Office of Enterprise Development drives the process for the Executive Team. The 2010 update leverages the tried-and-true content from the 2008 plan and relies heavily on the work done in prior years. ICT is a process of updating and validating assumptions that weigh the plan's vision, goals and targets against the current issues government faces today.

The diagram below provides a digest of the department's planning philosophy.

The CIO Vision – Michigan's chief information officer (CIO) sets the vision for DTMB and puts this vision into action through the ICT plan goals. The CIO establishes the review that leads to course corrections throughout the planning process and is ultimately in charge of progress.

Goal Ownership – DTMB executive-level staff members took ownership of specific sections of the 2008 plan to review and update for 2010. They examined the relevance of the plan's goals today, focusing on what has changed since 2008 and where the department needed to be in five years. These executive goal owners were responsible for making each goal real, investigating technologies for implementation, determining practical initiatives, seeking staff and agency input and bringing updates back to the planning team.

Strategies, Initiatives and Targets – The first step in development of the initiatives was a review of the "promises made" in the 2008 ICT plan. This reality check compared what we said we would do against what we actually accomplished and was an important first step in developing key strategies and targets for each 2008 plan goal.

MITEC Validation and Input – The Michigan Information Technology Executive Council (MITEC) helped update the plan and validate assumptions. They provided critical direction concerning their business needs. A survey in the early stages of planning provided feedback on the revised plan goals and highlighted opportunities as well as some new technologies that would help accomplish these goals. A MITEC subcommittee assisted with focused review of key sections of the plan, helping us address agency needs clearly.

ICT Planning Process

Communication – The ICT plan communications framework sets a schedule for the distribution and promotion of the plan. This schedule covers reproduction of copies, e-mail communication, in-house and external publications and articles, Web promotion, agency and citizen meetings, legislative communication, media relations and the production of presentation materials.

Implementation – The goals, strategies and targets are “marching orders” for all of DTMB and guide all decisions related to ICT in state government. All subsequent plans—such as the Infrastructure Services, Agency Services, Data Center Plan and Telecommunications plans—are checked against the direction provided in the strategic plan. Because we worked closely with the agencies in developing the plan, ICT identifies and implements the agency key business drivers and strives to support agency needs.

Reporting and Governance – For the past several years, we have used MiPLAN to track the progress and performance of the plan’s top initiatives. This tool is still used by several DTMB units and the Executive Office, which uses it to track progress on the Governor’s top initiatives. DTMB is investigating other applications and vendor resources that could provide better tracking of projects, targets and initiatives while improving accessibility, transparency and accountability.

Tactical Planning

A tactical plan is essentially about accountability. ICT is the sum of the action plans that puts the strategic plan in motion. At its best, planning leads to alignment of human and financial resources in a way that is cost effective, efficient and predictable. This creates a framework that improves employee satisfaction and saves taxpayer dollars

DTMB has created an 18-month action plan for tracking strategic plan progress. This plan includes a comprehensive project list that is prioritized for each ICT area and agency. ICT also includes a process for tracking and reporting on progress that will help us manage the many competing demands for ICT resources. This tactical plan is one step in the direction of a leaner government with greater focus. ICT is a tool to help us:

1. identify projects, applications and services that agencies can share.
2. work on the right projects.
3. confirm that projects align with Michigan’s ICT goals.
4. identify enterprise solutions that meet the needs of multiple agencies or partners.
5. achieve business objectives with fewer resources and at a lower cost.
6. eliminate wasteful duplication in services.

A project tracking solution is being developed that will allow dashboard views of all projects in the DTMB portfolio. This will include DTMB, agency and enterprise-wide projects.

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Office of Enterprise Development



Amy Baumer, Director

Vision

The Office of Enterprise Development (OED) is an internal service unit to the Department of Technology, Management & Budget (DTMB) as well as its primary external communications arm. Research, measurement and planning services are paired with communications, marketing and outreach expertise. This combined portfolio of activity—and related competencies—allows DTMB to eliminate barriers and align departmental action with customer needs.

As DTMB strives to be accessible, responsive and strategically aligned with its client agencies—as well as the citizens and businesses they support—OED assists DTMB with strategy, research, communications and public-private partnership activities that translate complex concepts and ideas into simple and tangible terms and outcomes. To this end, OED is comprised of three functional areas:

- **Strategic Planning, Research and Development:** This area manages the strategic planning activities and publications, provides research services, delivers best-practice alignment, and is responsible for developing and launching the department's new enterprise performance management program.
- **Communications and Outreach Services:** Responsibilities for this area include internal and external communications, including online services as well as outreach efforts.
- **New Economy Partnerships:** This area delivers government transformation, workforce re-alignment and growth within the state's ICT sector by teaming up with the state's economic development agency and workforce development arm.

In January 2010, OED adopted the following vision statement: "OED's vision is to be the leader in advancing technology in Michigan. We do this to improve lives through in-depth research, smart planning and dynamic partnerships." This statement is evolving to reflect the expanded role of DTMB as well as that of OED. Looking ahead, OED will ramp-up engagement with customers, providing critical performance and best-practice information to decision makers as well as providing communications expertise and crossing boundaries to better serve Michigan's agencies, citizens and businesses. This helps DTMB and its customers focus energy and resources on areas where the greatest impact is clear.

Strategic Planning, Research and Development

Since Michigan's 2001 information technology consolidation, ICT strategic planning has been a critical tool (described below) in developing and maturing this single organization to serve a wide and diverse set of state agency customers. Today—as ICT consolidates with management and budget—the challenges and opportunities are even greater. Both the structure of DTMB's planning organization and its processes have been adapted accordingly.

Scope of Services

Areas of focus within this unit are as follows:

- **Research Services:** Systematic review and analysis of best practices allows the department to be agile and responsive to customer needs. In addition to providing executive support and pursuing third-party validation, this unit is responsible for responding to inquiries from other states, local governments and related organizations.
- **Strategic Planning:** Strategic planning is at the core of our work, which includes facilitation, advisory and focus groups as well as the development and dissemination of planning processes and documents. In addition to Michigan's ICT strategic plan, this area is responsible for producing transition plans to bridge gubernatorial and director-level changes as well as handling internal division-level strategic plans and initiatives.
- **Measurement:** A new competency for this area is development of an enterprise performance management center of excellence, supporting surveys and assessments, establishing a common data repository as well as creating enterprise dashboards and reporting. This effort is focused on informing decision making, guiding strategy development and providing transparency to our clients and constituents. Generating this storehouse of information,

Appendix E

Office of Enterprise Development

analyzing and reporting on it on a systematic basis will support the advancement of quality and effectiveness of DTMB programs and services.

Key Drivers and Actions

- **Consolidation:** In order to fully leverage the consolidation of information technology with management and budget, DTMB is actively pursuing new partnerships (both within state government and beyond), evolving current business practices and ultimately reshaping government service.
- **Resource Constraints:** Structural budgetary and economic challenges as well as an aging workforce are initiating major changes within governmental operations. Utilizing information and communications technology is a critical solution that is increasingly relied on for adapting to today's resource constraints.
- **Pace of Technology Changes:** The only constant in technology is change itself. To meet the changing needs and demands of its clients, DTMB must stay abreast of new opportunities, challenges and paradigms.

Initiatives

Enterprise Performance Management: The objective of this effort is to leverage one common data repository and dashboard of enterprise-wide operational metrics. The first step of this effort was to establish a common repository for data collection, followed by an inventory of current measure and metrics as well as identification of critical gaps. The third step, which is underway, is identification of a set of measures to be tracked moving forward as well as a short- and long-term framework for the work of the performance management function. This step will be completed in summer 2010. Longer term, this could potentially be offered as a service to other government agencies.

- **Strategic Planning for ICT Infusion:** In partnership with Agency Services and the Center for Shared Solutions and Technology Partnerships, OED is assisting with development of several strategic initiatives—with completion scheduled for fall 2010—to fully leverage the benefits of the consolidated DTMB, including:
 - **Employee Mobility:** Over time, a greater number of employees are (or could be) transitioning into a mobile worker or telecommuting environment with only an occasional need to use facilities for office space, meeting space or clerical functions such as printing or making copies. The strategy development that OED is facilitating will addresses the distinct and diverse facility and technology needs of state employees as well as opportunities for improving service delivery and lowering costs. Success will rely on equipping employees with job-specific mobile technology and optimizing facility and infrastructure utilization. The goal of this effort is to deliver greater employee effectiveness and efficiency while consolidating state facilities and lowering the cost of government.
 - **Citizen/Business Government Access and Self-Service:** This strategy will take the shape of an effort to provide government services regardless of jurisdiction (e.g., state/local/federal) to citizens from easily accessible and consolidated (mobile) facilities. It will seek to promote the use of citizen self-service and reduce the cost of government by driving the adoption of self-service among citizens and businesses and reducing the number of government-owned buildings.

Key Partners in Delivery

- DTMB Executives and Unit
- Other Agencies
- External Research Services, including Gartner and Forrester
- Third-party Research Publications and Organizations
- National Association of State Chief Information Officers

Appendix E Office of Enterprise Development

Communications and Outreach

The consolidated communications and outreach unit within OED serves as the department's lead for internal and external communications, including online services as well as outreach and public-private partnerships.

Scope of Services

- **Internal Communications:** OED is responsible for internal-facing communications and online services, including the department's intranet site, newsletters and messages from the director to employees and client agencies. OED works closely with DTMB's Human Capital Management area in promoting a great workplace and an engaged workforce.
- **External Public Affairs:** To promote opportunities for partnership, sharing best practices and improve the overall impact of DTMB, OED is actively involved in providing communications support for external speeches, publications and the DTMB Internet site, www.michigan.gov/dtmb.

Key Drivers and Actions

- **Consolidation:** Ensuring a smooth consolidation of former management and budget employees and organizations with information technology employees and organizations is key for success of the new DTMB. Employee engagement and the establishment of links to the customer experience are critical.
- **Service:** Effectively communicating complex business problems and technology solutions with our customers and external partners is essential to meeting our goal to deliver efficient and effective technology services and shared solutions to agencies.
- **Cross-boundary Solutions, Innovation and Transformation:** Outreach and the cultivation of partnerships among key partners allow Michigan to continue operating in light of reduced budgets. More importantly, it is inspiring game-changing transformation of services for citizens and businesses.

Initiatives

- **Consolidated DTMB Communications Tools:** Communications vehicles, ranging from the departmental newsletter to the public-facing Internet site are being consolidated and revamped for release in summer 2010. This includes the development of social networking sites and platforms.
- **Employee Connect Portal:** Together with e-Michigan, OED is revamping and delivering a new State of Michigan employee portal. This portal provides a one-stop location for all employee services, from information technology to business and human resource services. This is set for launch by winter 2010.

Partners in Delivery

- DTMB Executives and Units
- Other State Agencies and Programs
- Local and Regional Economic Development Groups
- Employer-led Groups
- Higher Education

Looking Ahead

The Office of Enterprise Development is pursuing short- and longer-term initiatives to move both DTMB and the State of Michigan forward. The combination of strategy with communications allows the department to align business needs to departmental action and communicate complicated messages in layman's terms. From technology infusion and performance management to ICT sector growth, OED is a critical component in DTMB's effort to transform Michigan's government service.

Office of Enterprise Development

New Economy Partnerships (NEP)

What started as a pilot project in September 2008—in response to cabinet-level priorities and a struggling economy—evolved into a breakthrough economic and workforce program that was publicly launched in September 2009. New Economy Partnerships is a one-stop action team focused on accelerating the growth of Michigan's ICT sector. Key partners include DTMB, the Michigan Economic Development Corporation (MEDC) and the Department of Energy, Labor and Economic Growth (DELEG). Since it was launched, NEP has led to commitments by the ICT sector to create more than 5,000 jobs and generate \$23.7 million in capital investments.

Scope of Services

NEP utilized trend analyses and stakeholder input to define its tiered internal and external strategies, market analysis and regional targeting. This approach has fostered government-to-business, business-to-business, as well as partnerships with academia. In terms of governance, NEP is organized around four matrix-style working groups:

- **Grow IT:** Attracting private-sector jobs and investments, developing/implementing investment-attraction strategies and ICT-specific incentive packages
- **Work IT:** Aligning partnerships and action to boost development and attract and retain a capable, qualified IT workforce
- **Advance IT:** Identifying opportunities for innovation and growth and defining key industry- and geographic-specific clusters
- **Communicate IT:** Engaging end users and strategically marketing the effort

Key Drivers and Actions

- **Economic and Workforce Development:** Michigan's drawn-out structural economic challenges were a primary driver for the initial launch of NEP. Further reinforcing economic growth as well as diversifying the economy continue to drive the program today. Ongoing challenges around training and retraining of a qualified workforce are also key underpinnings of NEP action.
- **Business Development:** During one-on-one visits with ICT employers across the state, a common need around business development was identified. The need to connect Michigan employers, start-ups and entrepreneurs, schools and universities is a common and well documented issue.
- **Public/Private Partnerships, Innovation and Transformation:** Outreach and the cultivation of public/private partnerships have been identified as vital to the economic success of the state. This approach is also becoming a very important factor in the transformation of services for citizens and businesses.

Initiatives

- **ICT Skills Alliance:** In addition to winning new jobs and investments within Michigan's growing ICT sector, NEP is also heavily involved in workforce development, attraction and retention. In this vein, OED is actively pursuing the creation of an employer-led statewide skills alliance and online networking community. This activity addresses the challenges faced by the sector in cultivating an appropriately skilled workforce. The alliance—which is expected to launch by fall 2010—will initially focus on health IT and will expand to other NEP focus areas.
- **Business Survey:** To validate information gathered from one-on-one meetings with employers as well as glean baseline information to assist with the development of economic and workforce programs, NEP is developing a statewide survey of ICT businesses in Michigan. The survey is expected to be released in summer 2010 and be in the field approximately three months. Survey data will be collected, analyzed and reported to interested parties for follow-up.

Office of Enterprise Development

- **Annual Report:** To provide a record of accomplishments as well as transparency of effort, NEP will create and submit an annual report to its multi-agency steering committee, stakeholders and other interested parties. The annual report is scheduled to be published in fall 2010.

Partners in Delivery

- DTMB Executives and Units
- Other State Agencies and Programs
- Higher Education

Looking Ahead

Over the next decade, business and government investment in technology is expected to grow at twice the rate of the overall economy (Forrester). Through NEP and systematic attraction of leading ICT companies, Michigan is strategically positioning itself to fully leverage this smart computing opportunity. It is placing knowledge workers and leading innovators in-network with each other and is transforming government and improving service to citizens.

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Employee and Financial Services



Tina Richardson, Director
Employee &
Financial Services

Vision of Action

The Office of Employee and Financial Services (OE&FS) serves as the department's administrative arm. It oversees DTMB's ICT financial services functions, which include budget and accounting; human resources activities; administrative and technical policy services; human capital management programs; and all other agency administrative functions. The office partners with the Civil Service Commission and the State Budget Office to provide these services.

Within any organization, administrative functions are critical to organizational success. The organization's key administrators must address these functions during strategic planning processes. As a result of comprehensive planning efforts, OE&FS has established a clear vision for operations that is organized in four major focus areas:

- Financial Services, which develops, tracks, maintains and reports all State of Michigan ICT budgets, expenses and revenue
- Human Resources, which focuses on all personnel activities, including attracting and hiring employees, negotiating with unions and managing labor relations
- Human Capital Management, which ensures the organization is properly staffed and employees are trained and prepared to operate effectively
- Enterprise Services which provide policy administration and support services such as management of wireless devices, fleet and ICT equipment

Financial Services

Overview

Financial Services manages and oversees the department's ICT financial responsibilities, with the exception of contracts and procurement.

Budget: This area works with the State Budget Office, state agencies and the legislature to develop the appropriated annual budget for DTMB. Budget staff work with the agencies to implement, track and project ICT activities within the budget for the fiscal year.

Billing Services: This area provides core billing activities for telecommunications, data center and server hosting services. Billing Services maintains an active client billing interface with the state's accounting system and develops and maintains billing analysis tools. In addition, the office provides telecommunications invoice payment, approval and audit functions and supports billing data presentation in various forms and formats, helping client agencies understand and manage DTMB services.

Service Rate Development and Financial Analysis: This OE&FS team provides financial analysis and cost modeling for existing and proposed ICT services. The team recommends rates for new services and budget development, cost allocation, financial forecasting, long-range financial planning, business-case analysis and agency-impact analysis for ICT services.

Key Drivers

- Financial Services supports continuous improvement and efficiencies in financial reporting and forecasting for agencies and ICT programs.
- Financial Services supports efficient rollout of services from conception to production through establishment and implementation of a streamlined rate development process based on service catalog development.
- Financial Services is developing a sustainable, transparent process to improve communication, invoicing and reporting for special projects.

Appendix F

Employee and Financial Services

Initiatives

- Implement new service rate development and status reporting processes, FY 2010
- Incorporate capital asset schedules into the ICT asset management repository, streamlining accounting processes and enhancing capability to report on ICT assets, beginning in FY 2011
- Report additional key client usage metrics via intranet views and shared sites, FY 2011
- Implement software as a service for telecommunications wireless and wireline invoice review and payment, making the service available at the enterprise level, FY 2012
- Implement a budget development and forecasting tool suite, FY 2012
- Develop a single DTMB information technology services invoice delivered via the state's accounting system, FY 2013
- Develop a financial framework to support state and local shared ICT services, including broadband and shared facilities, by FY 2014

Human Resources

Overview

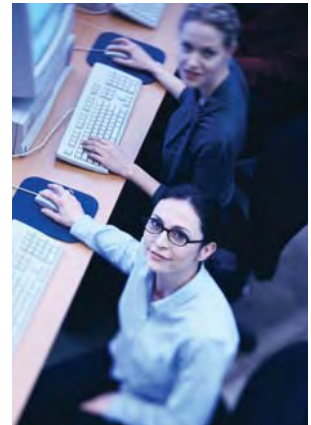
Human resources functions, responsibilities and staff were centralized in the Civil Service Commission; therefore, Human Resources provides direct support to DTMB as a client in a dotted-line relationship to the Office of Employee and Financial Services. This area provides customer service by working closely with Civil Service as well as DTMB managers, human resource liaisons and employees.

Key Drivers

- As a result of the ever-changing workforce, current economic conditions and constantly increasing expectations, efforts are focused on attracting a highly qualified workforce.
- Investing in employees and effectively managing the human resources process is vital to organizational success as we strive to make DTMB the best workplace possible.

Initiatives

- Create a program that expands networking opportunities and fosters closer relationships with key university and college staff, enabling DTMB to obtain top-level student assistants with the intent of reclassifying the best into permanent jobs with a minimum of selection processing time, FY 2010.
- Strengthen our relationship with the federal veterans placement program to better leverage federal funding, FY 2010.
- Partner with Civil Service to develop a modern, standard classification structure for ICT professionals to attract and retain a high-performing ICT workforce. Changes to the ICT specialist classification will be completed in 2011.
- Develop Web pages that promote the State of Michigan as an employer that is competitive with the private sector, FY 2011.
- Fully implement organizational structure standards that are consistent between Infrastructure and Agency services, allowing improved career path clarity and management of work areas, FY 2011.
- Implement a "real time" Web-based tracking system that allows management to view human resources transactions as they move through the Budget and Human Resources offices, FY 2011.
- Actively use the college placement services interview program to become a competitive presence on university and college campuses and engage in interview sessions before students obtain their degrees, FY 2012.



Enabling the Development of New Skills

Lansing Community College has created a classroom-based technology training program focused on high needs areas with DTMB. This partnership allows DTMB staff to earn college credit while they learn skills necessary to develop and maintain complex systems into the future.

Engaging and promoting technology careers in state government

DTMB started a partnership with Michigan State University to place graduate-level students in project management roles, providing additional staff resources for the state as well as hands-on experience for the students.

As part of the program, DTMB recruited 30 MSU graduate students, who have been working side-by-side with department staff, observing and learning how project management helps keep large ICT projects on-time and within budget.

Employee and Financial Services



Human Capital Management

Overview

The Human Capital Management team provides programs and services to ensure DTMB attracts, develops, supports and retains a high-quality workforce and a great place to do great work. The area provides a broad range of technical, leadership and employee development opportunities.

Key Drivers

- Ensure skill development opportunities exist for changing technologies that continue to drive the ever-changing needs of DTMB employees and organizations
- Support efforts to attract and retain employees

Initiatives

- Develop and implement the DTMB Virtual University, a single, central source of professional development that focuses on technical skills for employees, FY 2010.
- Design and implement a diversity program to enhance the agency culture and leverage the diversity of staff as an integral factor in organizational success, FY 2010.
- As part of the strategic workforce plan, identify and implement initiatives to address short-term staffing projections and changing organizational needs, FY 2010.
- Develop additional enhancements and functionality for the DTMB Virtual University. These enhancements will provide learning paths and career planning for employees, FY 2010.
- As part of the strategic workforce plan, implement long-term initiatives that prepare the organization to provide consistent service delivery in a period of projected staff and economic changes, FY 2011.
- Develop and implement a comprehensive on-board program to welcome new employees, build positive long-term relationships between the organization and employees and establish a sense of loyalty, FY 2011.
- Develop and implement a program for established leaders designed to ensure continuous development of interpersonal and leadership skills, FY 2011.
- Develop and implement a shadowing program, providing managers and supervisors with opportunities to shadow senior leaders, FY 2011.
- Expand the shadowing program to nonmanagement employees, FY 2012.
- Develop and implement a mentoring program that individual managers with the opportunity to develop an ongoing professional relationship with other managers, FY 2012.
- Develop and implement a program to provide managers with new skills, enabling them to integrate emerging organizational and work styles into their leadership patterns, FY 2012. Examples include matrix and distributed teams, community and collaborative work styles, mobile workforces, and unstructured work processes.
- As part of Michigan's mobility strategy, increase the opportunity for employees to telecommute by 30 percent, FY 2013.

Enterprise Services

Overview

Enterprise Services provides all the services an employee may need to perform his or her duties. This area is responsible for policy administration and support services for the department. Support Services includes fleet management, wireless device management, and management of IT hardware and software for DTMB employees as well as other services needed to effectively perform their jobs.

Appendix F

Employee and Financial Services

Key Drivers

- Enterprise Services is working to standardize processes used in the administration of policy, ensuring appropriate stakeholder review and repeatable processes.
- Enterprise Services is working to define and implement a centralized forms management function and process.
- To enhance customer service, Enterprise Services is consolidating all support services for DTMB employees.

Initiatives

- Fully implement a policy framework that encompasses administrative and technical policy, FY 2010.
- Inventory and centralize all administrative policies, FY 2010.
- Define and implement a centralized forms management process that includes inventory and centralization, FY 2010.
- Inventory and centralize all technical policies, FY 2011.
- Develop an automated approval process within DTMB for existing forms, FY 2011.
- Develop a one-stop intranet site for employees to access support services such as vehicle and travel services or end-user computing services, FY 2011.
- Apply policy logic to automate forms to ensure data accuracy, FY 2012.
- Develop a statewide automated approval process for existing forms, FY 2012.



Michigan's Mighty Mac, 350 engineers, 3,500 bridge workers,
7,500 truck people, millions of visitors.

more stories of teamwork.
TEAMWORK
Focusing on what we can do together, sharing information, resources
and energy to achieve our vision for Michigan.



Michigan's distinctive shape on the world.

One shape that represents our Michigan.
EXCELLENCE
We are not just about getting it done, but getting the work done in a way
that we are proud of and that our citizens are impressed with.



Cherished. The forest remaining stand of White Pine.

Michigan's Natural Place.
INTEGRITY
Is about honesty and so much more. It means, "we say what we will do"
and "we do what we say."



9,000,000 Michigan residents, 750,000 Native Americans, 170,000 Asians,
225,000 Hispanics, 1,000,000 African Americans, 7,000,000 Canadians

Solution state of Michigan michigan.gov
INCLUSION
We reach out to everyone in our society and every employee of state government
to be represented and involved in the important decisions that affect their lives.

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Appendix G | Agency Services

Agency Services



Lynn Draschil
Deputy Director
Agency Services

Moving forward, the drivers for Agency Services mirror the need of our clients for better service, reducing the resources spent to maintain existing systems, improving the overall quality of our services and processes and working to maximize the value of new investments.

Agency Services provides software development and account management functions for software and infrastructure for client agencies. Six information officers provide executive-level accountability and communication with clients. Each information officer is assigned to one or more agencies organized around similar functions. A client services director (CSD) is responsible for each client or multiple clients. The CSD is the upper- and middle-management liaison to the client, responsible for software development and integration groups as well as coordinating all ICT services for their clients.

Agency Services contains 13 customer-focused teams that provide the same types of services to different clients. Agency Services also includes teams that provide various types of shared services, which include common areas such as geographic information systems, Web development, application administration functions, centers of excellence, and query and reporting services.

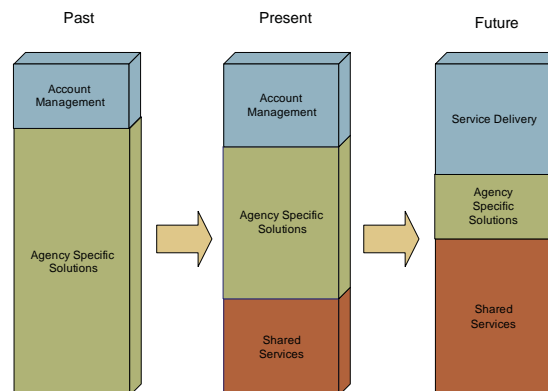
Moving Ahead

Agency Services' mission is "providing quality services using sustainable technology to quickly fulfill the needs of our client agencies."

Indirectly, we support all the strategic plan goals. Because of our role as the ICT coordinators for clients, our core purpose speaks to the second goal of the Michigan ICT Strategic Plan – to provide quality service to client agencies.

To continue improving services, we acknowledge we must break from our past primary focus of working within our own teams, envisioning and creating solutions only for specific customers. While this model satisfied individual clients, it was at the expense of standards and long-term sustainability of solutions. By dividing and separating the development and support resources for software, it also promoted a narrow view of ways to support State of Michigan ICT.

Agency Services Road Map



The road forward will involve more engagement with customers, providing them with additional information to manage their ICT investments and to make better decisions about their future ones. The need to reduce resources spent on existing systems and maximize the value of future investments guides us toward more shared services and fewer agency-specific solutions. We envision our clients focusing more on the processes and services performed and less on the resources performing them. Agency Services staff will place greater emphasis on the quality of services delivered, regardless of the client.

Agency Services

Initiatives and Objectives Shaping the Future

In the past, our interaction with clients consisted of standard account management practices. To improve service delivery, we are building portfolio management processes, establishing service-level metrics for existing services and using project management offices to control and monitor new development more consistently.

Building Portfolio Management Processes

Portfolio management involves a set of processes that allows an organization to see the work in progress as well as the work requested and organize resources to complete work with the highest priority. This requires tools to track the complete inventory of existing systems, projects and resources and monitor where resources are deployed. These capabilities, along with an annual call for projects, ongoing demand management and better budget planning and coordination, will help clients maximize the value of future ICT investments.

A standardized annual call for projects is among the primary processes that have been established. During this fiscal year, we targeted the agencies' highest-priority projects for funding in the upcoming fiscal year. Even though plans may change and new needs arise, the annual call for projects is a baseline for ICT investment during the year. By standardizing the process, we can identify agencies making similar investments and combine the investments into a shared service that will lower development and support costs.

Agency Services uses demand management to manage ongoing work requests outside the annual call for projects. Agencies have a continuing need to change systems to address new legislation, new federal requirements, changing business processes and better ways of doing business. Throughout the year, agency Services teams receive requests for changes to existing systems or for new projects that were not included in the annual call-for-projects baseline.

To ensure the agencies are aware of their project-wide resource commitments, Agency Services completes resource planning and allocation that is tightly integrated with project planning and tracking, providing clients with the appropriate impact assessment for all work in progress or previously planned.

Demand management helps us work with clients to prioritize, scope and resource requests to make the decisions to complete or defer the request. This process helps clients manage their IT investments better, ensuring the most valuable work is done. This also helps prioritize work for Agency Services staff.

Better Budget Planning

Budget impacts of new projects are considered for their development and implementation costs but not for the effect of costs for ongoing support and maintenance. Accounting for future operational costs for new systems will be a standard part of the project funding process.

ICT funding is appropriated on an agency-by-agency basis. DTMB will work to consolidate budget requests across the state based on common business needs. This will be especially useful in areas where shared services can benefit multiple agencies at a lower cost. One example is shared disaster-recovery servers.

Service-level Agreements and Metrics for All Services

DTMB is committed to providing outstanding customer service. Metrics allow transparency of operations to customers and facilitate accountability, integrity and improved processes. Metrics may include a specified response time for help desk tickets or an estimated delivery date vs. actual project completion. Employees will provide effort estimates as well as detailed tracking of work for billing purposes. Clients will receive more accurate expectations and better understanding of the services DTMB provides.

Foundational Framework

The DTMB foundational framework is a collection of drivers and best practices that define our approach and govern our projects as we deliver on our vision. This framework binds our initiatives and aligns them with the statewide technical direction and DTMB's project portfolio.

Shared Services:

Leveraging services enterprise-wide for ease of access, savings and efficiencies

Enterprise Architecture and Security:

Providing the tools, processes and standards to translate business needs into IT solutions securely, efficiently and effectively

State Unified IT Environment (SUITE):

Standardizing management methodologies, procedures and tools for systems development

Service Delivery:

Coordinating application, infrastructure and service delivery enterprise-wide

Organizational Drivers:

Providing the guiding policies and principles in the Michigan ICT Strategic Plan

Agency Services

Playing an enterprise role, Agency Services touches every service in state government.

Whenever a citizen:

- files an income tax return,
- pays or receives child support,
- wins the lottery,
- applies for a driver's license or is stopped by a state trooper,
- starts or operates a business,

DTMB plays a role.

A few examples of the benefits and opportunities our organization has facilitated by leveraging tools, hardware and reducing costs include:

- Food stamp trafficking, with 27 arrests tied to \$1.5 million in fraudulent trafficking (Data Warehouse data integration and analysis)
- Federal school lunch eligibility determination (Department of Human Services and Michigan Department of Education)
- Federal penalty avoidance of \$6 million as part of the federal food stamp program

Enterprise Portfolio Management Office

DTMB has demonstrated the importance of expanding ICT environment management practices beyond the agency level to formalize a complete ICT investment management program at the enterprise level. The Enterprise Portfolio Management Office was formed to accomplish this. This office will expand monitoring of its enterprise-wide portfolio of strategic ICT projects to incorporate performance data beyond cost and time.

- The Enterprise Portfolio Management Office is focused on creating methods to oversee and manage the state's ICT investment. By selecting ICT projects strategically, DTMB expects to create an ICT investment portfolio that meets the state's ICT goals and objectives and provides the best return on investment.
- EPM will move the organization forward through consistent use of a portfolio management process for the entire project lifecycle (select, control and evaluate).
- The office will drive compliance with the State Unified Information Technology Environment (SUITE) model and emerging enterprise architecture standards through the introduction of portfolio management teams.

Agency-specific Applications

Initiatives and Objectives Shaping the Future

Developing agency-specific applications was the rule of thumb to maintain services with the restructuring of ICT that created DTMB. As our organization matured, we identified new approaches to building, enhancing and maintaining services. The approaches include employing enterprise architecture-driven projects, implementing a new system development lifecycle, modernizing aging systems and increasing efficiency in maintaining existing systems.

Enterprise Architecture Driven Projects

A planned enterprise architecture (EA) for our systems will maximize future ICT investments through faster design and implementation and a simplified support environment. An EA strategy also reduces system outages and promotes faster recovery from problems. Agency Services will be a full participant and supporter in DTMB's enterprise architecture activities. Enterprise architecture starts with the most fundamental: technical architecture.

Technical architecture is defining the standards for technical products and their lifecycle of use in the State of Michigan. We currently may be using five or six different tools to accomplish the same function, which means we must maintain expertise and training, implement patches and updates and renew contracts and support agreements for all these tools. While one size or tool may not fit all, simplifying the technical architecture enterprise-wide to include fewer products will make a difference. The practice of technical architecture helps make decisions about the tools we continue to support or migrate toward and those tools from which we migrate. These decisions are communicated through our technology lifecycle roadmaps.

Solution architecture follows technical architecture. It is a set of processes that establishes standards using a combination of products to make a deployable solution for an application. For instance, if an intranet application is needed, there will be a ready template or solution pattern that identifies high-level architecture for the Web server, application server and database server and how and where to deploy it securely.

There also will be reference models that specify the best combinations of products from the technology lifecycle roadmaps that work well together and are easiest to support. These processes of solution architecture can speed development and implementation of new systems.

The processes facilitating EA-driven projects will let employees know the skills they need so they can target their training plans and careers appropriately. Also, an architect position will be created within each Agency Services team to work with their peers and colleagues in implementing these practices.

Agency contacts may eventually learn a new vocabulary related to products as we migrate toward more current and common technology. Agencies will benefit from improved development, implementation and support capabilities for their new systems.

Agency Services

System Engineering Model (SEM)

The System Engineering Model encompasses the policies and procedures that govern how we develop software. This has been implemented in DTMB through the State Unified Information Technology Environment. Using standardized processes reduces defects throughout the lifecycle of gathering requirements, designing, building, testing and deploying applications. The use of these processes will improve quality and customer satisfaction with the applications we build. All team members involved in the system-development process are trained and receive support in using these consistent processes. The system development skills are transferable anywhere within DTMB or the private sector.

A summary training is also offered to clients so they can understand our processes and the exercises in which we ask them to participate. Our clients can expect software will be developed with fewer defects and will work as expected.

Modernization of Existing Systems

The state's oldest systems are the most expensive to maintain. It is difficult to get updates and address new security threats on older platforms with limited vendor support. The skills needed to keep older systems running are not available from newly hired employees or through technical training companies and are even difficult to find in outside consultants. Our existing skills pools are waning as the demographics of our workforce shift. More than a third of our workforce will be eligible for retirement. These risks require us to modernize these systems.

Following are a few examples of older systems that will be replaced:

- A comprehensive and complex rewrite of Michigan's Unemployment Insurance (UI) systems will provide data sharing across functions, enhance customer service and provide flexibility in complying with changing federal mandates and other requirements.
- A new tax system – the Michigan Integrated Tax Administration System) – will provide efficiencies in tax processing and a framework for integrating the administration and enforcement of business and individual taxes, from registration to the collection of accounts receivable.
- The State of Michigan's child welfare information system must be replaced because of aging technology and program weaknesses. This project will build a new system that replaces multiple child welfare tracking, reporting and financial systems. It will allow agencies that place children to have Web access for out-of-home care reporting and field workers to make updates using mobile technology.
- The Department of State's business application modernization provides more citizen self-service functionality and is more efficient and user friendly.
- The Legacy Application Migration Program will modernize Michigan Department of Transportation applications to a sustainable platform.
- There are other major systems that need modernization, including systems for the Departments of Corrections and Transportation, the state's accounting system and liquor ordering, to name a few.
- Agency Services will work with agencies to identify systems and secure funding for modernization efforts in future fiscal years. DTMB staff can expect opportunities to learn new tools and upgrade their skills to be made available to support new systems.

More Efficient Operations to Reduce Support Staff Hours

More of our energy and resources are spent running systems than developing new ones. Our resources are finite, and we are pursuing initiatives to improve efficiency in maintaining current systems so that staff may be redeployed to improve productivity elsewhere and support new investments.

Better use of automated tools for batch processing, defect tracking, testing and system configuration management will streamline our current efforts. Resource planning and tracking tools as well as an improved separation of duties will boost productivity, allowing staff to be more focused and to concentrate fully on fewer responsibilities.

Outstanding Customer Support

In December 2009, the Michigan Department of Community Health (DCH) Director's Office bestowed an employee award for external and internal leadership on Sue Doby and Mike Goodness. Honorees are nominated by DCH employees. The director of DCH commented that "our team thinks so highly of them that they wanted to recognize them with one of our internal agency awards!"

Agency Services

Improvements speed law enforcement access to critical systems

Michigan's handgun registration and breathalyzer databases, along with the Michigan Incident Crime Reporting System, are now readily accessible by law enforcement authorities. Thanks to a system upgrade, law enforcement officers have easier access to this data through the Michigan Criminal Justice Information Network portal, allowing them to work more safely and efficiently.

New Web site gives Michigan citizens an elite portal

The www.michigan.gov Web site has been redesigned from the outside in, not the inside out. Visitors to the site can access five times the amount of information without leaving the home page. It is a more useful and pleasing site, and it positions Michigan as one of the best government Web sites in the country.

Shared Services

Initiatives and Objectives Shaping the Future

Shared services are not new to DTMB or Agency Services. The Shared Solutions and Technology Partnerships area is a service and competency center for geocoded data and geographic systems. HRMN and DCDS are examples of shared applications. Combining and standardizing support using shared services will lead to improved support and better return on investment for the State of Michigan. There are three models that will be used to expand services to clients.

1. Highly technical solutions used across multiple agencies can be supported more efficiently through a shared-service center staffed by skilled resources. These service centers will be formed around universal and tangible technologies that will provide ongoing support to any agency that requests it. Instead of duplicating support for common technologies across narrowly focused customer teams, resources can be combined to offer a more consistent and wider range of support to customers. Examples of services provided by these centers include business object reporting, address quality assurance for postal and geocoded locations and extract, transform and load (ETL) services.
2. Specialized skills and knowledge can be deployed on a project basis across the organization through a competency center. Competency centers will bring together staff with specialized knowledge and make them available to consult on a project-by-project basis. The competency center will give expertise and guidance to the teams doing service delivery. Data sharing and classification is an example of a future competency center. The group will act as a resource for data classification standards and processes. Agency Services teams can turn to employees in these centers when implementing data sharing agreements.

These shared services models allow staff the opportunity to excel at specific technology and jump from project to project. This will provide staff with additional training opportunities and the ability to work with multiple customers. Clients will benefit from reduced support costs and common access to the same skills and technologies and a knowledge base that is helping set standards for other agencies.
3. To maximize the value of new investments, a third model is a shared application. Shared applications make sense when a common business process may be used by multiple agencies. Examples of current shared applications are the Data Collection and Distribution System for time reporting, the Human Resources Management Network for HR management, MI 360 for feedback of employee performance and the Michigan Business One Stop, an application to perform licensing processes.

For employees, this means development teams with in-depth knowledge of common processes can make a great impact by offering applications to multiple agencies. For our clients with common processes, these applications will often offer 90 percent or more of the needed functionality without any customization. By sharing applications, agencies can access new automated systems, even in the midst of severe funding constraints.

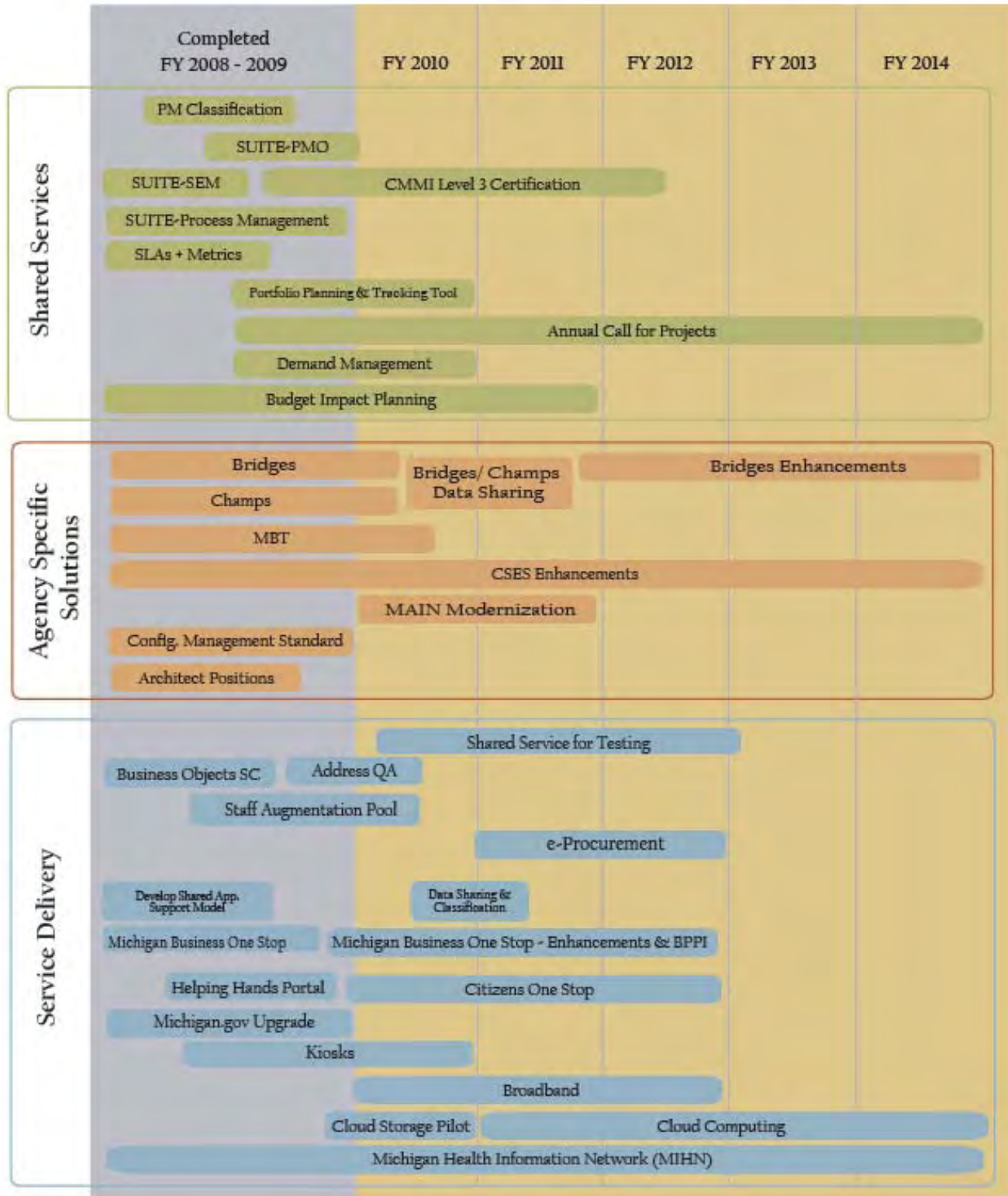
Improve Skills Availability

At various times, there are many highly technical skills needed by DTMB clients that are not yet available in our customer-oriented teams. DTMB will build these skills with a staff augmentation pool within the department. This pool will offer flexibility and access for temporary project assignments. Staff in the pool will be exposed to a wide variety of projects, and agencies will have quick and easy access to high-demand skills not present in their existing service delivery teams. This will be a small, deployable pool intended for priority needs with short time frames or as temporary project support.

Agency Services

Initiatives and Targets

Below is an overview of the upcoming initiatives and outcomes for Agency Services for FYs 2008 through 2014.



Agency Services

Targets

- 2010 – Expand current services to mobile devices for additional access to Michigan services such as providing text alerts
- 2010 – Expand the use of social networking to reach citizens
- 2010 – Develop and deploy new enterprise-wide shared services to reduce agency costs and improve effectiveness
- 2010 – Implement shared resource pools to meet the demand for services to leverage our resource skills better
- 2010 – Implement a cloud computing strategy that will make services more accessible and reduce costs
- 2010 – Establish a Web site usability lab to provide software design and testing capabilities
- 2010 – Formalize ICT investment planning and management activities
- 2010 – Develop an annual enterprise-wide call-for-projects process and project list
- 2011 – Develop interfaces to connect the DCH Health Information Systems to the State of Michigan Health Information Exchange and the Michigan Health Information Network to allow sharing of information in and out of these systems
- 2011 – Continue full implementation of Web 2.0 technologies within www.michigan.gov and help agencies understand potential uses and implementing technology
- 2011 – Complete expansion of human services Internet self-service to add cash, day care and emergency assistance
- 2011 – Establish a usability lab to capture public/private input on software usability in design
- 2011 – Solicit public feedback for 25 percent of all projects that serve citizens through use of a moderated Wiki
- 2011 – Render 25 percent of all public searchable databases (license look-up etc.) for use on any mobile device
- 2011 – Implement technology standards and development tools that reduce costs to develop, deploy and maintain applications
- 2011 – Implement an enterprise credentialing process for all licensed occupations
- 2011 – Further refine the annual enterprise-wide call for projects process to include maintenance activities
- 2011 – Expand the use of video conferencing arraignments with local courts, the Department of Corrections, and Department of Community Health mental health facilities
- 2011 – Expand portfolio management to assess the value of current investments by reporting on total annual cost of ownership for legacy solutions
- 2011 – Prioritize legacy solutions for replacement with a strategy to identify common applications across agencies. Build new solutions once to replace many legacy systems.
- 2012 – Implement a citizen one-stop portal that provides a single access point to government services uniquely tailored to citizen needs based on individual profiles
- 2012 – Expand the Michigan Business One Stop service to include individual certification and licensing
- 2012 – Implement an enterprise licensing system.
- 2012 – Increase high speed internet access exponentially in more than 300 statewide public facilities
- 2012 – Work with local government to aggregate all local community meetings, happenings etc., on a user's personal page on www.michigan.gov. This requires looking at the inbound IP address, associating it with a Zip Code and displaying relevant community events for that Zip Code.

Agency Services

- 2012 – Consolidate state facilities to meet citizens's needs while providing a high level of customer service
- 2012 – Develop business analytics to match tax filings and income levels for direct certification of families eligible for food stamp assistance
- 2012 – Create a secure Web account that allows citizens to maintain records of g-to-c transactions. This will leverage existing personal Web accounts for UIA and DHS services and allow for push/pull delivery of subscribed reminders such as driver's license renewal, sports license filing deadlines, traffic conditions, etc. This would also be rendered for use on any mobile device.
- 2012 – Expand enterprise shared technologies and facilitate strategic planning among agencies to align and leverage business processes focusing on themes such as multichannel and self-service expansion, improved agent performance and customer service and workforce management.
- 2012 - Create secure cloud storage for environment criminal justice that meets Criminal Justice Information System requirements and is available to state, county and local criminal justice agencies
- 2013 – Incorporate local government into the Michigan Business One Stop, providing one business resource for all state and local government needs
- 2013 – Continue implementation of the SUITE processes to achieve Level 3 Capability Maturity Model Integration compliance
- 2013 – Leverage other cross-government applications such as e-Health to provide a consistent common citizen interface
- 2013 – Transform Agency Services resources to a skills-based deployment model
- 2013 – Complete the legacy modernization of applications for the Liquor Control Commission and the Office of Finance and Insurance Regulation
- 2014 – Partner with Michigan Department of Transportation to develop intelligent transportation system information access in vehicles and on personal communication devices
- 2014 – Establish mutual aid agreements across government entities, leveraging resources, technologies and facilities to streamline government services
- 2014 – Complete the legacy modernization of the Unemployment Administration applications
- 2014 – Establish a state network capable of handling daily intelligent transportation system data from 1 million vehicles statewide without degradation
- 2014 – Establish a state network capable of displaying any State of Michigan security video from any state operations center without degradation
- 2014 – Complete a new multistate version of the successful MDOT FieldManager system along with the American Association of State Highway and Transportation Officials, a multistate consortium of transportation officials

Agency Services

Crosswalk with the Goals, Strategies and Plan

The crosswalk for Goal 2 of the Michigan ICT Strategic Plan and the activities set forth in this Agency Services plan is found below. It illustrates how Agency Services teams will address the department's high-level priorities over the next five years.

Goal 2 Strategies	Efficiencies	Improve Quality and Accountability	Maximize Value
Portfolio Management			✓
SLAs		✓	
Project Management Offices		✓	✓
Architecture		✓	✓
System Development Lifecycle		✓	✓
System Modernization	✓		
Improve Maintenance Operations	✓		
Shared Services	✓		✓

Looking Ahead

Agency Services will continue its commitment to providing high-quality, timely and efficient service to all our agency partners. As Michigan's enterprise ICT model continues to evolve, promoting and facilitating greater collaboration between client agencies will become a critical new role for Agency Services.

With this role comes recognition that the diverse pool of talent and knowledge within each client agency is among our greatest resources as we find and develop innovative new solutions. Through increased service sharing and collaboration, Agency Services will empower our agency partners with new tools, enabling them to spend less time wrestling with technology and more time fulfilling their mission and commitment to Michigan's citizens.

Following are areas of focus and examples of upcoming projects that support the agencies and provide simpler, streamlined access points to government services:

Expanding Michigan's services to reach citizens and business anytime, anywhere.

- The Bridges program will expand to allow self-service intake for additional income assistance programs, including cash, day care, emergency assistance and health care. This expansion will add eligibility questions and business logic to the existing online food stamp application. Likewise, we will enhance our interactive voice response system to allow Department of Human Services clients to check benefit status and report changes to demographic information. This self-service expansion will provide relief to caseworkers whose caseload ratio has grown from 200:1 to 700:1 in the past five years
- Unemployment Insurance Agency system modernization will increase self-service functionality.
- Implementation of the Michigan College Access Portal will provide a Web-based resource for parents, educators and students to access information on careers, schools, test preparation and scholarship opportunities and streamline admissions into Michigan's higher education institutions.
- Michigan Business One Stop will incorporate online forms, providing businesses with a simpler, timelier application process.

Agency Services

- As part of the Mi-Case effort, the child support self-service application will expand to allow citizens to make online changes to their demographic information, such as name and address. Citizens also can validate benefit payment information and history. This self-service option will reduce paper processing and telephone traffic to county child support offices.

Delivering efficient and effective technology services and shared solutions to the agencies:

- The Bridges application will share data with the Department of Community Health's Medicaid system, automatically determining eligibility for children's health care.
- Development of a new child welfare system will combine many subsystems into one and allow Web access for Michigan's network of foster care providers and mobile access for case workers.
- Liquor control system modernization will provide enhanced purchasing, inventory and sales, offering a more effective solution for agencies and businesses.
- An insurance and banking system rewrite will enhance services for those responsible for insurance regulation.
- The Unemployment Insurance Agency modernization will provide real-time data sharing across functions, increase productivity and provide flexibility in complying with changing federal mandates and other requirements.
- The Michigan Integrated Tax Administration System will provide a framework for integrating the administration and enforcement of business and individual taxes, from e-registration to the collection of accounts receivables.

Fostering partnerships across and beyond state government:

- Student recruitment will be enhanced through collaboration with the Capitol Area IT Council, Lansing Community College, Michigan State University and DTMB to establish a technology apprenticeship program. This collaboration provides participating college students with on-the-job training and subsequent employment.
- A Statewide Education Longitudinal Data System will create an educational data portal that provides standardized student information reporting with links to K-12 and post-secondary systems, creating a collaborative tool for educators across the state.
- Data exchange with major utility companies will provide automatic bill payment for income-eligible clients before shutoff of utilities.
- Data sharing between DTMB and the Michigan United Way network of 211 call centers will provide access to each others' databases to help build out a searchable tool.

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Shared Solutions and Technology Partnerships

Vision of Action

The Center for Shared Solutions and Technology (CSSTP), a division of the Michigan Department of Technology, Management & Budget (DTMB), was created to foster the exciting possibilities of shared solutions across government and beyond traditional government boundaries. Built on the foundation of Michigan's consolidated ICT environment, this current era of opportunity is bolstered by Michigan's ICT maturity that is both nimble and agile. Within its grasp is the promise of shared solutions across state agencies and into the new realm of collaboration and partnerships with businesses, K-12, universities, nonprofit organizations and local units of government. In the economic reality of 2010, such solutions within and outside ICT organizations are vital to securing efficiencies, better services and overall success of all partners. As cash-strapped budgets continue to accelerate this growing trend, Michigan is forging ahead with a strategy to identify win-win technology solutions for all parties involved through four major focus areas:

Our Mission

Through technology, we will endeavor to build a government that is efficient and effective.

- **Public Partnerships**

Create innovative partnership programs for more effective and efficient government across all levels

- **Public/Private Partnerships**

Strengthen and expand partnerships beyond government to the private sector and higher education

- **Technology**

Leverage existing and emerging ICT infrastructure and functionality across the state

- **Health IT**

Expand health information technology and health information exchange programs and partners

The office works to create and advance relationships across and beyond traditional boundaries. Working closely with a wide range of partners, staff members strive to build on existing ICT efficiencies, leveraging partner resources and expertise for the benefit of all Michigan's citizens.

The promise of shared technology solutions is steadily broadening, due in part to the ability of the state's consolidated and mature ICT environment. Several opportunities have emerged from the American Recovery and Reinvestment Act of 2009, including the creation of new partnerships around broadband connectivity to rural areas and the expansion of health information technology. The Office of Shared Solutions and Technology Partnerships is working to take advantage of these and other opportunities and is committed to passing on the benefits to local communities and citizens.



Shared Solutions and Technology Partnerships

Organization

Shared Solutions, formerly the Center for Geographic Information, is an office within DTMB that focuses on services and products common to all areas of state government. Additionally, it is a service center and a competency center for geocoded data and geographic systems. It is made up of several key functional areas:

Spatial Technology – Spatial technology provides leadership, technical expertise and policy for the acquisition, development, use, dissemination, promotion and sharing of geographic information in the State of Michigan. This unit combines and standardizes support offerings by sharing solutions and services, including Web-mapping applications, enterprise GIS and the Michigan Business Portal.

Privacy and Business Intelligence – The Privacy and Business Intelligence Competency Center enables and encourages appropriate and effective use of data the state has collected to further the privacy of Michigan's citizens.

Address Quality Assurance – This function involves development of a process to cleanse and standardize U.S. and Canadian addresses in a consistent, enterprise-wide manner. The work in address quality assurance has produced a common model for raw address data that can be shared by agencies. In addition, this area makes standardized address information available and helps accurately store raw and cleansed/standardized addresses in a common data model.

Data Transport Tools – Data transport tools provide the ability to design data flows to extract information from multiple source systems, make it more valuable and then deliver it to one or more target databases or applications.

Query and Reporting – Plans call for consolidation of existing product licenses for State of Michigan query/reporting tools to allow agencies to leverage query/reporting toolsets at minimal cost to taxpayers.

Census, Statistics and Demographic Data – This function assists state agencies in the appropriate use of population data and represents Michigan in the Federal-State Cooperative for Population Estimates and the State Data Center program. These programs provide opportunities to improve the accuracy of population data, promote its proper use and influence federal statistical policies that affect the State of Michigan. Population data is important for targeting public programs, assessing needs, understanding and anticipating trends, and distributing state and federal funds. Figures derived from the census and from population estimates are used to distribute more than \$400 billion in federal funds to state and local governments each year.

Key Drivers

- Implementation of highly technical solutions used across multiple agencies
- Elimination of duplication of support for common technologies across narrowly focused customer teams
- Resources for data classification standards and processes for implementing data-sharing agreements.
- Current and future opportunities for expansion or creation of shared applications
- Ability to administer programs that use location-based information and need to relate one database to another geographically
- Incorporate additional online mapping tools into the DTMB development toolboxes

We strive to build once, serve many and operate as one unit with a single entry point to reduce costs, provide more and better services to citizens and make crossing government lines seamless.

Appendix H

Shared Solutions and Technology Partnerships

Initiatives	Description and Target Dates	
Internal State	Business Objects	Ongoing
Government Shared	ETL tools	Ongoing
Service Partnerships		
Michigan Geographic Framework (MGF)	Migrate current MGF environment to a new Oracle Spatial 11g topological version-enabled model with an ERDAS ADE internet graphic user interface	June 2010
	Expand current Transportation Data Stewardship program by surveying the GIS community to identify processes, procedures and tools that better facilitate communication through the NSDI grant process	October 2010
	Develop tools for partners to use in interacting with the new MGF environment as a result of surveys conducted through the NSDI grant process, winter 2010	December 2010
	Delivery of MGF version 11	May 2010
Public Private Partnership – Bing MAP Enterprise License	Extend Bing Maps Ultimate licensing agreement enterprise-wide to enable all Michigan governmental units to use BME in any official Internet mapping application without limits to users, transactions or applications.	May 2010
	BME licensing agreement also enables state and local agencies to allow for imagery flights at a shared cost arrangement with flights being scheduled for up to 34,000 square miles of the state over the life of the contract. Flights still to be determined.	December 2010
Census 2010 Partnerships	Working with the state Complete Count Committee and the U.S. Census Bureau to help deliver an accurate count for Michigan.	Due to the President in December 2010
		Due to the Governor in April 2010
GIS Application Development	Development of the Michigan Imagery portal to allow downloading and viewing of aerial imagery over multiple years and multiple counties	First edition of the portal December '10
	A rewrite of an application being developed in conjunction with the MDNRE that allows boaters to locate boat launches and harbors.	September 2010
	Development of an application to be used by the Attorney General's office to track parolees and probationers. The application will provide addresses, last known locations and the types of offenses of Michigan's parolees.	December 2010

Shared Solutions and Technology Partnerships

Initiatives	Description and Target Dates	
Expand Health Information Technology and Health Information Exchange Programs and Partners	Successful implementation of the \$24 million award from the FCC to use broadband to connect more than 390 rural hospitals and medical clinics.	Ongoing
	Assist health information exchanges with planning, implementation strategies, support and best practices.	Ongoing
Broadband for Michigan	Continue work with vendors that receive American Recovery and Reinvestment Act of 2009 funds to ensure collaboration among local stakeholders as they roll out projects from 2010 to 2012.	Ongoing
	Work with NASCIO and other public entities to ensure the FCC's National Broadband Plan has no negative impacts to the expansion and use of broadband in Michigan.	Ongoing
Statewide GIS Business Plan	Work with GIS stakeholders across Michigan to develop a geospatial business plan to help support the Michigan IT Strategic Plan's goals and objectives and build a collaborative spirit around GIS in the state to help reduce costs and create efficiencies.	October 2010

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Appendix I | Infrastructure Services

Infrastructure Services



Dan Lohrmann
Director
Infrastructure Services

Foundational Framework

Shared Services:

DTMB is leveraging services enterprise-wide for ease of access, savings and efficiencies.

Service Delivery:

DTMB provides coordinated application, infrastructure and service delivery enterprise-wide.

Organizational Drivers:

DTMB embraces the guiding policies and principles in the 2010-2014 Michigan ICT Strategic Plan.

Information Technology Infrastructure Library:

DTMB is implementing and refining processes for incident, change, problem configuration and release management.

Virtualization:

We will embrace virtualization across all of infrastructure by using a "virtual first" policy.

Cloud:

DTMB will develop a flexible government cloud infrastructure with the performance and reliability needed to run enterprise applications.

Enterprise Architecture and Security:

DTMB provides the tools, processes and standards to translate business needs into ICT solutions securely, efficiently and effectively.

The 2010-2014 Infrastructure Services (IS) Strategic Plan offers an expanded vision for shared technology services that includes new partnerships with city and local governments. In addition, we are setting the stage for a remarkable second decade of innovative progress with expanded opportunities for our state agency clients. Michigan's economic difficulties offer exciting new opportunities for cross-boundary thinking as well as the challenge of implementing government infrastructure projects to maximize benefit to citizens.

Over the past four years, Michigan has consistently offered agency partners a better technical solution to business problems at a lower price. We have deployed new wireless networks, state-of-the-art desktop and laptop PCs, broadband network connections and more, while improving customer service. At the same time, we have supported deployment of numerous new business applications that replaced legacy mainframe environments. We will continue to provide new infrastructure offerings that are more cost effective to maintain and offer better lifecycle value.

What does this mean in real terms? The state's investment in data-center consolidation and virtualization has positioned Michigan to take advantage of cloud technology. Michigan is turning consolidated hosting centers into a flexible government cloud infrastructure with the performance and reliability needed to run our government enterprise applications. Michigan's vision for cloud architectures will allow users to access virtual pools of state resources—from computing to network to storage—when they need them and achieve shared efficiency and agility. We will leverage existing assets and applications while offering self-service deployment and provisioning through Michigan's MI Cloud. At the same time, more self-service will be offered to clients who seek cloud storage or other infrastructure offerings at a lower cost.

The cloud will reduce power use and free ICT staff from administrative tasks, allowing them to focus on innovative solutions to Michigan's changing business needs. The state is piloting a private storage cloud infrastructure with the goal of providing a lower-cost self-service storage offering for nonsensitive data housed within MI Cloud. The future direction is to increase collaboration with local government entities with this offering. In the next six to 12 months, this initiative will offer a similar service for computing needs using the existing VM infrastructure.

Michigan's government cloud addresses traditional and emerging risks in a comprehensive and holistic manner; however, the stability of our traditional service offerings will still be paramount. As many clients start migrating information and services into the cloud, we will ensure that information and answers are available during that transition. Just as the migration from mainframes to client-server architectures required comprehensive planning and execution, the migration of services and information to MI Cloud will be performed with operational excellence.

It is our goal to be the provider of choice for state and local government technology infrastructure needs throughout this second decade of the 21st century. Our future green data center will make this vision a reality for state and local governments as well as our education partners.



Infrastructure Services

Michigan has a rich history in technology infrastructure. Ours was the first state to appoint a chief information officer (CIO) and to complete telecommunications and mainframe consolidations. We found ways to make progress with the tightest budget conditions in our state's history and recently delivered on our promise to consolidate 36 data centers in the Lansing area.

Michigan's ICT infrastructure is managed by five teams: Telecommunications, Data Center Operations, Office Automation Services, Field Services and Technical Services. These teams are the face of ICT services in Michigan. They respond to an average 29,000 calls every month and serve the state's 55,000 employees. IS directors are responsible for an annual budget of more than \$160 million and provide connectivity to more than 1,200 locations throughout the state. Every state function, from prison operations to park reservations, is supported and enabled by these five groups.

Planning for the Future

Infrastructure planning cannot be successful if critical work is performed in separate silos. A data center plan is limited in its effect if the telecommunications network is not available to support it. Likewise, dramatic advancements in PC technology and capability are lost if the teams supporting end users are not equipped with the necessary skills or tools.

Recognizing this, Infrastructure Services brought together leaders from across the organization and developed a common vision. Looking at the customer needs defined in our strategic plan, studying industry best practices and taking input from staff, they developed a plan to build the infrastructure today that will meet the needs of tomorrow.

Michigan's employees, businesses and citizens are becoming more mobile. They require immediate access to services and demand higher levels of service than ever before. Meeting those needs head on, IS developed its mission. It contains long-range plans and tactical initiatives that range from virtualization and green ICT to statewide office automation, disaster recovery and remote-worker capabilities.

We invite you to read through this document and experience firsthand Michigan's infrastructure strategic plan.

IS Mission:

We are entrusted with our citizens' services 24 hours a day, 365 days a year.

We are expected to forecast the changing landscape of technology and deliver value with every project.

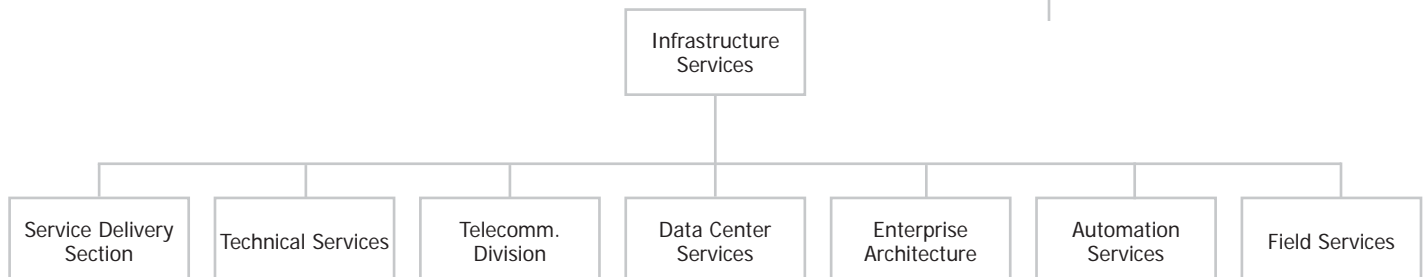
We are called to partnerships that make government more effective and energize our staff.

We lay the foundation of Michigan's future through technology.

We are DTMB Infrastructure Services.

IS Vision:

United in Service
Dedicated to Excellence



Infrastructure Services

Technical Services

DTMB's Technical Services Division serves as the state's application system administrator. Its staff support and maintain the infrastructure for more than 2,300 of Michigan's most critical servers. This team keeps legacy systems running and provides innovative ways to deliver shared technology services across all state agencies. The division is responsible for the state's massive storage of 4.4 petabytes – 4.4 quadrillion bytes – and backup and recovery of centralized data.

Its mission is providing best-of-breed technologies for the operating environment, ensuring mission-critical applications data requirements are met in a timely and cost-effective manner.

Scope of Services

From the first piece of hardware needed to the last delivery of release code, Technical Services' 110 employees play a critical role in every software development launch. In partnership with Agency Services application development, this team delivers on the milestones of all DTMB's major projects, including Bridges, BAM, CHAMPS, Business One Stop, cloud computing, MBT and server/storage virtualization. From shared services such as the thin-client center of excellence to standardizing the state's call center environment, Technical Services makes Michigan's technology work securely and efficiently every hour of every day. Technical Services is organized into the following groups:

- Application Server Support
- Enterprise Centers of Excellence
- Enterprise Storage
- Enterprise Backup and Disaster Recovery
- Enterprise Security Compliance

Top Initiatives

Technical Services will engage in efforts to continuously improve operational efficiencies, support special technologies and provide processes, controls and tools for virtual server environments. These initiatives and their milestones include:

Top Initiatives	Milestones	
Continuous improvement of Technical Services' operational efficiencies Providing patch management, administrative account cleanup, end-to-end restore testing, Citrix CoE governance model, capacity cleanup and optimization	2010	Consolidate disparate Citrix environments in an enterprise-rated offering using an ELA
	2011	Establish policies, procedures and training for technical services
	2011	Establish server security compliance reporting and quality assurance
	2010	Provide backup de-duplication
	2011	Expand data archiving
	2011	Provide LDAP-based authentication for UNIX servers
	2010	Establish end-to-end restore testing readiness
	2010	Implement new audit compliance tools to improve security on a real-time basis
	2011	Deploy compliance tools for critical applications server infrastructure
	2012	Expand deployment of compliance tools for remainder of the production applications servers
	2011	Enhance DR Lab capabilities and processes for testing critical applications and the plan
	2010	Establish schedules and conduct DR testing for all critical applications

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Top Initiatives	Milestones	
Emerging/specialized area technology support Support processes for specialized technologies	2010	Implement Infrastructure as a Service for private internal storage cloud
	2011	Implement Computing as a Service for private VM servers cloud
	2011	Establish metro cluster across hosting centers
Virtualization – server and storage with green IT Providing process, tools and controls for virtual server environments with aging and end-of-life computing equipment and establishing a virtualization center of excellence	2010	Provide physical to virtual server migration/consolidation
	2011	Provide storage virtualization and consolidation
	2011	Migrate 70 percent of end-of-life servers to virtualized infrastructure
	2010	Consolidate storage arrays to reduce storage and backup physical footprint
	2011	Expand migration of physical servers to virtualized infrastructure for energy and cost savings
	2011	Reduce storage and backup footprint migrating all data to virtualization capable storage infrastructure
	2011	Deploy de-duplication technology for further reduction of data from primary storage and backups

Key Drivers and Actions

- **Consolidation:** Michigan has consolidated its staff, data centers, information and telecommunications into a comprehensive and holistic environment that supports the state's essential functions. These enhancements have saved hundreds of millions of dollars for the State of Michigan. This consolidation program set a new standard for ensuring that end-to-end government technology is reliable despite unprecedented change. From 13 terabytes of storage in 2001 to 4.4 petabytes and Storage as a Service in 2010, our consolidation of data has expanded our storage and backup infrastructure at exponential rates. Information became the central asset of our government infrastructure. People continue to send e-mail, blog, and post photos and videos. The Technical Services team employs state-of-the-art solutions, maturing our support and allocation methods to keep up with this demand.
- **Server Virtualization:** Our consolidated infrastructure allowed Michigan to embrace virtualization technologies as the next step in our journey. Michigan consolidated legacy VM Ware infrastructure into an enterprise agreement, saving clients 25 percent and reducing physical server hardware at a ratio of 20:1. By using a “virtual first” policy during initial design process, Michigan has been able to grow this virtualization platform for a majority of refreshes and new projects. Michigan is not just virtualizing servers. We are implementing virtualization features in our storage, mainframe and backup environments as well.
- **Storage and Backup Virtualization:** Michigan offers a multitier storage service for all state government, amounting to more than 4.4 petabytes spread across three hosting centers. Recent projects are actively consolidating seven storage arrays into two, reducing the data center footprint and maintenance costs and adding the storage virtualization options to gain further efficiency in data access. Storage virtualization optimized our storage operations and critical infrastructure, allowing Michigan to move data without disruption to the right tier of storage while applications remain online. Michigan's hosted storage is backed up by an enterprise backup environment with virtual tape libraries and disks for fast backups and restores. Newer technologies such as de-duplication are being evaluated to reduce backup volumes. This effort will save money for clients and reduce footprints. Efforts are

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also underway in Data Center Operations to move mainframe tape environment to a VTL environment in 2010.

- **Security Enhancements:** With attacks on the rise, standardized environments are critical for the security of the state's data and systems. Technical Services leads DTMB's effort. Staff have developed standards for all new UNIX and Windows servers. The team is also examining standard processes and practices for existing systems, implementing best-practice settings across all environments and removing unnecessary access. To maintain compliance for audits, PCI and other entities, Technical Services is implementing a reporting tool that will alert the proper staff when a possible change needs investigation. Additionally, single sign-on and encryption technologies are expanding to secure access and protect data.
- **Business Continuity and Disaster Recovery:** Technical Services is responsible for implementing back-end solutions to meet business needs for critical applications. To meet these requirements, Technical Services has provided redundancies in all supported areas such as selecting hardware with redundant components, clustering servers, replicating data to alternate hosting centers and maintaining off-site backups.

Initiatives

These initiatives will be developed and implemented over the next five years:

- **Expansion of the disaster recovery test lab** to enable regular restore testing of data for critical applications: This initiative will increase dependence on backups when needed in a disaster.
- **Security enhancements:** These include patch management, operating system baselining, event-log handling, administrative access control and implementation of separation of duties. Technical Services plans to use an industry tool set for reports and alerts.
- **Centers of excellence:** Centers support Citrix, virtualization and server support for call centers, identity management, database servers and other emerging technologies.
- **Define career path and staff development:** Improving Civil Service classifications will align with industry classifications, provide up-to-date technical training and engage in succession planning.
- **MiDEAL:** Negotiated discount levels for storage solutions and servers will be extended to local units of government.
- **Testing lab modernization:** Staff will provide patches, upgrades, restores and emerging ICT research.
- **LDAP authentication for UNIX server access** for securing server administration.

Partners in Delivery

In carrying out these plans, resources will be drawn from across and beyond the infrastructure organization. The teams involved include:

- Office Automation
- Office of Enterprise Security
- Enterprise Architecture
- DTMB functional areas

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Telecommunications

DTMB Telecommunications (Telecom) acts as the Internet service provider and telephone company for State of Michigan executive branch agencies. By providing high-speed data communications and telephone services in support of the executive branch agency operations, Telecom enables government's successes and connects Michigan with secure, reliable services.

Telecommunications' challenge is the creation of a nimble, responsive and cost-effective telecommunications framework that meets the short- and long-term needs of the state's employees and citizens. Governor Granholm's administration has set Michigan on the path of reinventing itself as a more efficient and effective government. This is reflected in Goal 3 of this ICT strategic plan: Manage technology to provide better service and secure faster delivery. Telecom plays one of the most vital roles in meeting these ICT priorities.

Scope of Services

With 90 employees, Telecom currently connects 55,000 state employees across 1,200 locations. Telecom plans, designs, engineers, installs, manages and supports the network infrastructure that provides secure connectivity for government operations throughout the state. Telecom supports tomorrow's strategic priorities and current agency business drivers. Its spectrum of services includes:

- Statewide IP network design and operations
- Secure wireless IP network design and operations
- Internet access design and operations
- Remote access to state network applications
- Statewide telephone and voice-messaging design and operations
- Call center telephone support
- Network security design and operations
- State telephone operators
- Cable and fiber between and within state office buildings – design and operations
- Video, audio and Web conferencing management
- Telecommunications services contract management

Top Initiatives

Telecommunications will engage in efforts to provide enhancements, share network solutions and expand services. Initiatives and milestones include:

Top Initiatives	Milestones	
Hosting Center enhancements Added bandwidth, virtual hosting center support, enhanced security	2010	Increased security for Internet applications
	2010	Network support for virtual environments (green initiative)
Managed LAN services	2012	Upgraded and centralized management of all state LAN infrastructure
Shared network solutions	2011	Research, analysis, economic evaluation of opportunities for shared public infrastructure opportunities

DTMB Telecommunications:

What people say about us

"Very prompt response.

When the phone support person could not make the change remotely, she passed on the service request to another level. He came to my office today, made the fix quickly, and watched to make sure it worked properly when I logged back on.

Both staff were cordial and professional. Very pleased!"

– DNRE

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Top Initiatives	Milestones	
Michigan Health Information Network	2011	Support and analysis of State of Michigan network requirements
Fiber plant enhancement Increase fiber-supported locations	2010	Additional Lansing area fiber installations Increase number of fiber co-locations with major telecoms
Voice services	2010	Expand Voice over IP services
	2010	PBX maintenance RFP award
	2011	PBX parts and professional service RFP award
	2010	Upgrade voice mail systems
	2010	Session Initiated Protocol Voice over IP trunking
	2011	E-911 compliance
	2012	Legacy PBX consolidations
Unified communications	2013	Integrated communications and presence
	2012	Conversion of 25 percent of state employees currently using TDM phone service to the enterprise VoIP system
	2014	All state employees will be converted to the enterprise VoIP system

Key Drivers and Actions

- **Unified communications:** Increasingly, voice and data communications are converging into a single service. VoIP phones replace plain old telephone service (POTS) lines with IP-based models that use the state's data network as their backbone. This has a dramatic impact on the state's communications strategy. Demand is rising as the legacy voice network infrastructure ages and agencies search for low-cost alternatives for providing the service. Telecommunications must balance this cost-cutting demand with the loss of the high reliability that exists in voice services. Our engineering teams are developing services that can offer clients the best of both worlds. The trend toward convergence has already driven efficiencies such as PBX consolidation. It will ultimately result in telephony-based applications that are increasing in scope, complexity and value.
- **The remote worker:** Access from anywhere at anytime is the hallmark of DTMB's strategic plan. Whether it's enabling the mobile worker or meeting the imperative of pandemic planning, Telecommunications plays a pivotal role.
- **Wireless:** The State of Michigan's NASCIO award-winning wireless services are being rolled out statewide.
- **Service management:** As a service organization, DTMB is coordinating its use of back-office service-management applications and monitoring tools. As these tools mature and their use expands, Telecommunications processes will be affected. As a critical step in delivering value to citizens, internal processes must be rework to increase the efficiency of all our teams.
- **Security, capacity and network design:** The state's enterprise network is continuously evolving. Every year, applications and agencies require more bandwidth to do their jobs. Engineers are continually securing, re-working, optimizing and designing for increased

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demands. These demands can come from large-scale development initiatives, changes in user needs (streaming video, etc.) or security threats. Telecommunications works in partnership with the rest of Infrastructure Services and the Office of Enterprise Security to stay ahead of demand.

Initiatives for the 2010-2014 planning cycle are as follows:

- Internet expansion: Expand Internet bandwidth and management for multimedia use and business services
- Bandwidth upgrade: Increase overall bandwidth in the wide-area network as well as large metropolitan networks
- E-911: Provide planned support of pending E-911 requirement legislation
- Unified communication and collaboration: Leverage Internet Protocol Telephony installations and standards to enhance Michigan's voice and voice mail applications
- Voice consolidation and centralization: Upgrade and consolidate legacy Private Branch eXchange (PBX) infrastructure to save costs and increase agility
- Enterprise-managed LAN migration: Standardize local area network infrastructure
- IP video: Enhance multimedia capability of State of Michigan networks for training, video on demand and videoconferencing
- Unified Communications Strategy, Phase 2: Integrate to wireless communications and presence-aware communications systems

Partners in Delivery

In carrying out these activities, resources will be used across and beyond the Infrastructure Services organization. The teams involved include:

- Technical Services
- Agency Services
- Field Services
- Office Automation
- Data Center Operations
- Enterprise Architecture
- Enterprise Security
- Local governments
- Office of Shared Solutions

DTMB Telecommunications has the mission to actively enable Michigan's state government transformation by providing innovative solutions and exceptional service. Our goals are to provide high-availability voice, data and video network services, consistent network architectures, centralized management, stable and competitive rates, exceptional customer service and secure networks.

- We serve more than 50,000 customers inside and outside state government.
- There are more than 37,000 desktop phones within our system.
- There are more than 1,300 networks and subnetworks within our system.
- We serve more customers than Jackson, East Lansing or Battle Creek.
- Our 90 Telecommunications staff manage the various state voice and data systems and services.
- By January 2012, 50 percent of our customers will be utilizing VoIP.
- By 2013, 50 percent of our customers will be utilizing unified desktop communications.

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Field Services in Action

M/1 standardization in progress

When it comes to standardizing state government's computing environment, the Field Services Division is moving Michigan forward at a fast clip. The M/1 Adopt initiative is a statewide push to consolidate 19 different computing environments into a standard enterprise framework.

By reducing the number of systems supporting basic enterprise computing functions such as directory services and file, print and desktop environments, costs are reduced and service levels improved. To date, 30,000 workstations have been standardized.

Field Services

The Field Services Division (FS) provides the department's onsite contact with clients, including frontline services for end users throughout the state. We strive for minimal user downtime, excellent customer service and the most efficient use of state resources. Field Services often has direct impact on consumer safety, statewide liability and customer satisfaction.

Scope of Services

Field Services includes 185 people who meet the service needs of 55,000 state employees across Michigan. We provide support to resolve client problems and install new equipment. In 2009, Field Services staff performed 47,491 repairs and installed 28,888 items. We provide a steady flow of experienced field technicians to the Client Service Center, improving the response time for initial calls. We work closely with the Office Automation Team on server assessments, installing servers, switches and routers.

Field Services is defined by several flexible teams ready to meet customer needs throughout the Upper and Lower Peninsulas. Its nine service areas across the state are based on geography. Staff are divided among 13 teams that provide service whenever and wherever it is needed.

Field Services is a matrix organization that offers cross-functional knowledge and support, growth of individual staff and managers, a team concept to meet the needs of our clients and the ability to leverage resources to meet changing needs.

Top Initiatives

Field Services will engage in efforts to improve service, standardize desktops and provide opportunities for staff development. Initiatives and milestones include:

Top Initiatives	Milestones	
Service improvements Define mobile worker support scheme. Regionally locate multiperson cubes in state office buildings, providing the mobile worker with a workspace, access to conference rooms, network connection, parking and electronic equipment recharging capacity.	2011	Establish mobile worker support centers in eight regions. The CSC may route overflow calls to Field Services analysts and technicians at these centers.
	2010	Provide onsite server support to all DHS and MDOS outstate office locations—dynamic assignments from DTMB partners
	2010	Update all ICT training materials, checklists and partnering efforts
	2010	Migrate MDOC to M/1 standard desktop environment
Desktop standardization Incorporate desktop consolidation success to drive efficiency in daily work	2010	Migrate MDOC to M/1 standard desktop environment
	2011	Review all FS procedures, communication patterns and policies
	2010	Implement mobile worker procedures for FS technical staff to limit footprint in state-owned buildings. Foster "start from home, end at home" procedures.
Staff development Develop, reward and train staff. Incorporate agency empowerment training.	2010	Establish statewide office hours at mobile worker support centers
	2012	Support desktop virtualization pilots in targeted business areas
	2014	Implement full-scale statewide virtualization for desktops

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Key Drivers and Actions

- **Remote Worker:** Demands for wireless offices and increased use of mobile devices will expand the role of the Field Services technician. As these devices become common in the technical landscape of our remote offices, Field Services will need to support multiple channels of accessing the state's applications. Training programs and formal support guidelines will be developed.
- **Remote Support Enhancements:** As DTMB defines its new service management approach, Field Services will be able to provide technicians with complete service history, technical reference and dynamic troubleshooting guides. By adopting advancements in the tools available, diagnostic processes can be enhanced significantly, remote office inventories updated and the time to resolve problems decreased.

Initiatives

Initiatives for the 2010-2014 planning cycle are as follows:

- **Improve problem resolution processes:** Improve response time to outages, equipment failures and virus attacks
- **Increase coordination with the Client Service Center:** Diagnose and repair issues during the client's initial call, saving a trip to the worksite
- **Increase transparency:** Provide agency representatives with the ability to view and influence Field Services' project assignments, allowing new priority needs to rearrange existing plans.

Partners in Delivery

In carrying out these activities, resources will be incorporated from across and beyond the infrastructure organization. The teams involved include:

- Office Automation
- Agency representatives

Supporting Our Customers

"Nothing is more integral or personal to state employees' work environment than their desktop or laptop. Field Services is on the ground every day making sure that our users are up and running. Their commitment and customer service set the tone for the rest of Infrastructure Services."

Kirt Berwald, DTMB
Information Officer



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Office Automation Services

DTMB's Office of Automation Services (OAS) brings Michigan government onto a common technology playing field. With more than 58,000 desktops and 900 applications in operation, OAS is charged with transforming and simplifying the state's technology architecture and creating a centrally supported, enterprise-wide common office.

Standardization and shared tools are driving themes for OAS in its efforts to move Michigan closer to the consolidation finish line.

Scope of Services

With 195 employees, OAS's reach extends across the spectrum of state government and includes its ongoing push to provide a single desktop environment that supports all the business needs of the different state agencies and departments. As the voice of DTMB, they are responsible for the consolidated ICT Client Service Center. Pairing customer service with the organization responsible for delivery of remote support tools ensures that the service center receives the latest tools in its quest to increase first-call resolution.

Services include in-depth engineering, which created, designed and updated the automated provisioning environment that allows in-demand monitoring, distributing, patching and upgrading desktop software anywhere in the state. In addition, OAS provides:

- development and support of wireless solutions.
- engineering for the state's consolidated e-mail systems.
- technical training.
- an inventory depot for the most effective tracking and delivery of equipment.

The organization is comprised of the following units:

- Administrative Applications
- Client Service Center
- Computer Help and Training
- Depot Maintenance and Logistics
- Design and Delivery
- Messaging
- MIPRINT Services
- IT Asset Management
- Technical Training
- Wireless Support

Top Initiatives

Office Automation Services will provide customer service improvements, implement technology solutions, expand support to mobile workers and unify communications, among other initiatives. Initiatives and milestones include:

Top Initiatives	Milestones	
Remote/mobile workers Expand support and infrastructure to enable Michigan's mobile workers	2010	Implement the third release of next generation laptop software
	2010	Offer Windows 7 on netbooks and notebooks
	2011	Provide data encryption for all 12,000 notebook users
	2012	Provide CCM Internet support

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Top Initiatives	Milestones	
Client Service Center Implemented new call center phone system	2011	Implement a new automated call center phone system
Design and delivery	2010	Implement an automated e-mail solution
M/1 ADOPT Standardize State of Michigan's office infrastructure	2011	Migrate the Department of Corrections
	2011	Migrate 40,000 desktops
	2011	Migrate the Department of Transportation
	2012	Migrate all agencies to M/1
Customer service improvement Increase help desk first-call resolution to 75 percent and implement automated password reset	2010	Implement an e-mail response management system
	2010	Implement back off support at CSC
	2011	Implement central dispatch statewide
	2011	Establish self-service portal for ICT support issues
	2012	Add new channels for access such as web chat
	2012	Implement knowledge base
	2012	Implement self-service portal
	2013	Implement call center workforce management
Unified Communications	2011	Pilot integrated e-mail and instant messaging as first phase of UC
	2013	Move all agencies to a consolidated messaging platform
M/2 Desktop Technologies Leverage technologies such as desktop virtualization to manage the state's desktops, realize additional cost savings and support efficiencies	2011	Conduct desktop virtualization solutions assessment and pilot
	2012	Conduct initial rollout of desktop virtualization in specific business areas
	2013	Implement desktop virtualization
	2014	Complete statewide virtualization for desktop and mobile devices
	2014	Pilot software virtualization/software as a service
	2011	Expand integration of mobile and smart devices to deliver services

Key Drivers and Actions

- **Remote Worker:** The state must plan for threats such as pandemic flu. In these budget conditions, every effort must be made to reduce travel and allow our workforce to complete work while in the field. The demand for mobile applications delivered on cell phones and BlackBerries is rising. State police use BlackBerries to conduct background checks. These needs have prompted OAS architects to develop new solutions for the mobile worker. OAS is working with the Office of Enterprise Security and Telecommunications to develop a model that takes the state office on the road and provides our workforce with the flexibility it needs.
- **E-discovery:** Across the nation, the legal demand for immediate access to electronic mail, stored documents, data and systems output has never been greater. In this business

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**From the Honorable
Jennifer M. Granholm
Governor of the
State of Michigan**

“Our vision in Michigan is creating a consolidated technical environment with standard desktops and laptops. The power of 55,000 employees working on the same equipment and using the same software is tremendous. It will help create efficiencies that will save money while improving services to citizens.”

environment, the stakes are high for getting e-discovery right. OAS engineers and our Agency Services partners are developing solutions to allow ICT and legal organizations to search and retrieve content instantly, transforming manual processes into an enterprise asset that lowers discovery costs, improves litigation and supports and enables internal investigations.

- **Security:** Stories of identities stolen from a lost or stolen PC or laptop are reported regularly by the media. Well-meaning state employees have introduced viruses into the network from remote equipment brought back from the field. OAS has worked with the Office of Enterprise Security to develop a comprehensive program of standardization and endpoint and encryption solutions to protect against hackers, malware, protocol attacks and more, keeping security invisible to the end user. This offering is available in the mobile environment.
- **Standardization:** All the drivers listed above lead to an inevitable conclusion: To deliver the services Michigan needs, the state office must be standardized, streamlined and highly controlled. To respond to business needs, OAS staff must understand every component of the solution. The MI/1 ADOPT project is achieving this level of service. OAS is moving rapidly through the state, consolidating and standardizing file and print services, the desktop itself and security solutions for every state worker.
- **Desktop Virtualization:** The state is positioned to leverage ICT consolidation, standardization and automation to drive operational and support efficiencies that will reduce costs and improve customer service. Michigan is ready to drive the next phase of its award-winning standardized office infrastructure by expanding its solution base into desktop virtualization and thin-client technologies. The goal is to maximize desktop management efficiencies, drive costs down and expand green ICT initiatives in the state.

Initiatives

Initiatives for the 2010-2014 planning cycle include:

- **Endpoint security:** Implement secure solutions for mobile devices
- **Asset management:** Improve infrastructure asset inventory capability
- **Data consolidation to M/1 Windows cluster:** Enhance and complete file and data migration to a centralized solution
- **E-mail archiving:** Implement an e-mail archiving solution
- **Call center improvements:** Institute a new call center phone system
- **Identity management:** Create user provisioning at the help desk
- **E-mail security enhancements:** Provide virus protection within the e-mail system enterprise-wide

Partners in Delivery

In carrying out these activities, resources will be utilized from across and beyond the Infrastructure organization. The teams involved include:

- Office of Enterprise Security
- Agency Services
- Other Infrastructure Services groups
- Enterprise Architecture
- Local government partners

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Data Center Operations

Data Center Operations (DCO) provides centralized hosting services for all state agencies. Staff install hardware and software and provide operational and technical support for a variety of mainframes, enterprise services and more than 3,881 servers. DCO monitors device and critical application performance and recommends improvements to achieve the highest levels of security, performance and responsiveness.

With an Information Technology Infrastructure Library-based service delivery organization, employees are trained and organized into groups centered around the following areas:

- Service Management Center, which manages incident, problem, configuration and change processes and provides 7x24 operation, monitoring and support for all hosted applications
- Enterprise Monitoring and Platform Support, with responsibility for 7x24 support of the Unisys Mainframe, Enterprise Data Warehouse and Data Exchange Gateway platform environments and enterprise monitoring of all critical applications and hosted environments
- Configuration Management, which plans and facilitates installation of newly purchased or redeployed equipment and decommissions obsolete equipment in hosting centers and other critical ICT facilities. This area maintains the state's comprehensive configuration management data base.
- Facilities Management, which oversees and maintains hosting center facilities
- Scheduling and Data Entry, which provides centralized job scheduling and data entry services
- Disaster Recovery Services, which provides centralized systems and support for disaster recovery and business continuity planning services for all state government

Scope of Services Direction for the Next Three to Five Years

DCO strives for consistency and works toward consolidation whenever possible. Our skilled staff manage and maximize the power of technology and processes to provide cost-effective ICT. DCO manages the Information Technology Infrastructure Library, which contains incident, change, configuration and release-management processes as well as enterprise monitoring, media library, mainframe, enterprise technical and disaster recovery services.

Our services are shared across government. Clients include all state agencies, Michigan's judicial branch, the Social Security Administration and the federal government. We are proud of our efforts to balance client needs with operational efficiency, and we continue to work to become the government hosting provider of choice in Michigan.

The state is exploring a public-private partnership to form the Great Lakes Information and Technology Center. This shared data center will deliver long-term data center sustainability and improved operations. In spring 2010, more than 60 vendors expressed interest in a request for information that sought partners in the project. A request for qualification and a request for proposals will follow in 2010 and 2011.

As Michigan moves forward with new technology, DCO will continue to bridge yesterday's technology to meet today's needs through its service management strategy and operations. This ensures sustained service – all day, every day – across state government.

Top Initiatives

Data Center Operations will provide enterprise monitoring, platforms and configuration management. DCO will implement continuous quality improvement recommendations, work toward implementing a disaster recovery process and green ICT efforts, and establish a data center to meet Michigan's future needs. Top initiatives and milestones include:

Data Center Operations is proud of its excellent customer service. In April 2009, staff received the Customer Service Award from the department's Agency Services area. We have tailored our services to deliver value and efficiency and to take a "greener" approach. We have consistently incorporated efficiency and effectiveness in our services, and we continue to strive for this excellence, ensuring our customer's needs come first.

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Top Initiatives	Milestones	
Enterprise monitoring/ configuration management Tool rollout/consolidation of tools and staff	2010	Enhance the CMDB
	2010	Enterprise monitoring consolidation/STD
Enterprise platforms Legacy platform management	2010	Retirement of legacy Bull and Assist mainframes (completed 2010)
	2010	Develop data warehouse strategy for the future
Implement continuous quality improvement recommendation	2010	Develop service catalog
	2011	Develop ITIL problem management processes
	2012	Automate change management processes
Disaster recovery process Build disaster recovery process for critical applications	2010	Identify process, staffing and funding
	2011	Complete assessment of red-card critical appli- cations
	2010	Implement tools, identify critical applications (completed 2010)
	2011	Gather and enhance application portfolio infor- mation in CMDB
Green ICT Optimize existing hosting center power requirements	2012	Data center power enhancement request (com- pleted 2009)

Key Drivers and Action

- **Green ICT:** As follow-up to the department's successful consolidation efforts, ICT discussions have gone beyond cost savings to address energy efficiency. Data Center Operations staff are exploring ways to optimize energy use in the state's computing environment. Consistent improvement that drives updated equipment standards helps facilitate best practices. These efforts continue to evolve as new solutions are developed.
- **Disaster Recovery Planning:** DCO's hosting centers house 60 applications used to perform the state's most critical business functions. Agency Services and DCO teams are mapping critical systems functions, ranging from law enforcement systems to those that keep the food supply safe. The critical nature of these systems demands a full analysis of our ability to recover from an outage and ongoing commitment to maintaining capabilities.
- **Monitoring and Control:** Today we face a complex network of disparate monitoring tools and capabilities. DCO has taken the lead, working with Enterprise Architecture and Infrastructure Services to develop solutions that unify our service management strategy and give technical support staff a clear view of daily operations.
- **Information Technology Infrastructure Library Maturation:** DCO is organized and trained around ITIL components: incident, problem, change, release and configuration management practices. Today's challenge is to mature and extend the reach of ITIL practices to all Infrastructure Services and to integrate these processes with the SUITE framework across DTMB.

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Initiatives

- Transformation of current data centers: Improve, upgrade and expand capabilities of Michigan's hosting centers to make them more agile, flexible, adjustable and green. DCO's 14 computer room air conditioning units at Lake Superior were put into operation in 1994. To pursue green energy initiatives, DCO will replace these end-of-life units with efficient chilled-water units by the end of FY 2010. The new units will use chilled water from the State Energy Center, reducing power consumption up to 90 percent. The project will also allow return of a portable 375 kw diesel generator on loan from DTMB Facilities Operations. Implementation of this \$2.38 million project will provide more efficient and cost-effective operations within our most critical hosting center.
- Realignment of data center staff: Meet client business requirements better and implement changes to legacy technology environments.
- DCO recognizes the industry trend toward service management and away from computer operations. This places focus on delivery and support services, performance monitoring and management of cross-organizational work. Elimination of the Bull and Assist mainframe and implementation of new technology decreased the need for legacy scheduling services for Department of Community Health, Department of Human Services and the Michigan State Police. In reviewing future staffing requirements and weighing the impact of possible retirement legislation, the DCO management team announced a plan to expand and enhance the Service Management Center. This effort will enhance service coverage as well as offer new opportunities for staff. These changes should eliminate the need for on-call supervision, reduce overtime and enhance service to meet client needs.
- Information Technology Infrastructure Library implementation: Implement and refine processes for incident, change, problem and release management and document processes department-wide. DCO has established ITIL incident and change management and is working through continual service improvements. Upcoming implementation of problem management processes will enhance the department's service management framework. This project will train DTMB staff in the steps and documentation used in the problem management process and will establish the role of task manager. Implementation of problem management will ensure consistent problem handling and empower staff to drive problems to a swift, cost-effective resolution. These continuous service improvements help the agency mature in ICT best-practice service-management strategies and ensure efficient and effective performance by ICT staff.
- Disaster recovery: Finalize implementation of infrastructure and services to support disaster recovery planning and business continuity management across state government. This effort highlights cooperative efforts between DTMB and Continuity of Operations/Continuity of Government (COOP/COG) and buy-in from all Michigan government agencies toward this Continuity of Government – Disaster Recovery planning project. Michigan has consolidated data centers, information and telecommunications into a significant government cloud that supports all the state's essential functions. These enhancements have saved hundreds of millions of dollars, but risks have increased, creating the potential for a "perfect storm" to disrupt critical business operations. The Government Cloud Protection Program–Disaster Recovery project addresses both traditional and emerging risks in a comprehensive and holistic manner. This program sets a new standard for ensuring that end-to-end government technology is reliable despite unprecedented change. The State of Michigan can't control how the organization may be affected by a natural disaster, power outage, terrorist attack or other unplanned incident. ICT staff, however, are working to ensure government is prepared to recover with minimal impact and data loss. With the close integration of technology and business operations, the software has the potential to increase efficiency, power new service models and enhance agility through ICT for Michigan's government cloud. This information has allowed us to make better use of technology by sharing systems, applications and hardware in a cloud infrastructure.

Hosting Center Facts

The popularity of the Hosting Centers has grown over the last few years. In 2004, DCO hosted just more than 800 servers. Today, it hosts more than 2,849 servers serving all of state government.

The state's hosting centers store about 1.8 petabytes (PB) of data. For perspective, two PB is sufficient to store the information contained in all academic research libraries in the United States.

Today, the state's data centers include more than 30,000 square feet of raised-floor environment.

Infrastructure Services

- Legacy platform management: Decommission two legacy platforms to improve and integrate Michigan's remaining mainframe and enterprise technologies for the future. The installation, testing and implementation of the new Unisys Mainframe and virtual tape environment will be completed by the end of FY 2010. The mainframe platforms provide around-the-clock critical business application support for seven state departments. Use of this platform continues to rise, making it essential that this service evolves with technology changes and ensures critical service levels for clients. These systems use StorageTek Powderhorn tape silos for automated tape handling. A project is underway to refresh the production mainframe with a Unisys Libra 690 and replace the mechanical tape silos with virtual tape library technology. Benefits of this strategy include but are not limited to:
 - Cost savings: The state projects savings of \$2.8 million over the next three years.
 - Greater efficiency: Newer technology and faster processors provide significantly higher performance, lowering cost to agencies. Lower power and cooling costs result in a smaller footprint.
 - Improved reliability: Virtual tape technology is replacing aging tape equipment.

Partners in Delivery

Carrying out these activities will require resources from across the infrastructure organization and beyond. The teams involved include:

- Agency Services
- Office of Enterprise Security
- Telecommunications
- Technical Service
- Office Automation
- All state agencies for DR/business continuity

These efforts will eliminate mechanical components and improve reliability significantly.

Infrastructure Services Alignment

In Infrastructure Services, we believe strategic planning is a holistic activity. Every project is an opportunity to move the state one step closer to its goals and lay one more brick in tomorrow's technical foundation. Each plan is developed with a purpose, aimed at a long-range objective for the state. These objectives are articulated in the DTMB ICT Strategic Plan and serve as the basis for all infrastructure planning. The following pages show the alignment of initiatives outlined in the plan.

To develop the plan and enable this alignment, IS managers conduct quarterly off-site workshops to look at the issues, challenges and solutions through the eyes of customer agencies. These workshops challenge us to look at leadership in new ways and enhance communication, especially involving the critical issues of innovation, process and management.

Infrastructure Services

Goal One: Access

- Green ICT
- Internet expansion
- Data Center CRAC refresh

Goal Two: Service

- Centers of Excellence
- LDAP authentication
- Unified communications
- E-mail archiving solution
- Identity management
- Information technology
- Legacy platform management

Goal Three: ICT Management and Infrastructure

- Expansion of the Disaster Recovery Test Lab
- Security enhancements
- Testing Lab modernization
- Bandwidth upgrade
- Voice consolidation and centralization
- Enhance managed LAN migration
- End point security
- Asset management upgrade
- Enhanced e-mail security
- Infrastructure Technology Library Implementation

Goal Four: Great Workplace

- Define career path and staff development
- IP video
- Re-alignment of Data Center staff

Goal Five: Cross Boundary Solutions

- MiDeal
- E-911
- Disaster recovery

Goal Six: Innovation and Transformation

- Transformation of current data centers

Michigan 2008-2010
Strategic Goals

Goal One : Access

Provide exceptional services to Michigan citizens and businesses anytime, anywhere

Goal Two: Service

Deliver efficient and effective technology services and shared solutions

Goal Three: ICT Management and Infrastructure

Strengthen operations and security through statewide solutions and universal standards

Goal Four: Great Workplace

Supporting a talented and engaged workforce

Goal Five: Cross Boundary Solutions

Accelerate partnerships across and beyond state government

Goal Six: Innovation and Transformation

Drive innovation and technology to transform Michigan government

Infrastructure Services

History in the Making: A Shared Infrastructure

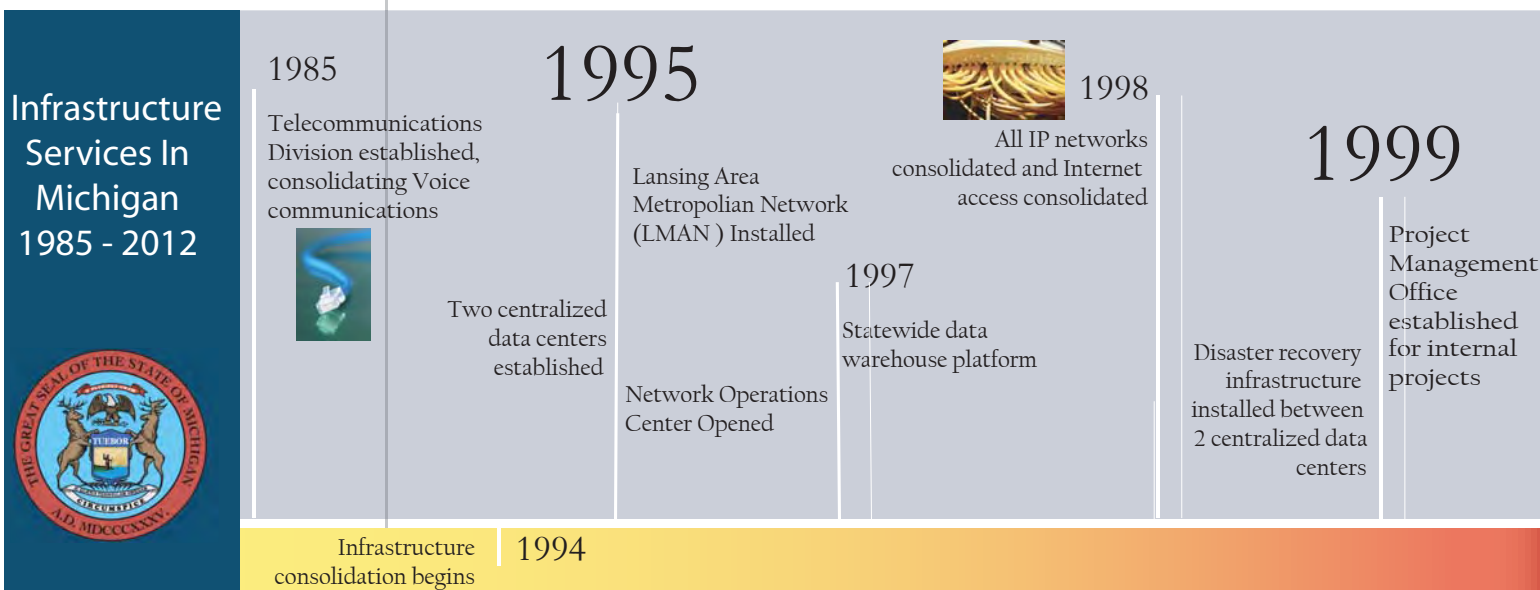
Standardizing technology is a daunting task, to say the least. Michigan took on that challenge in the 1980s when the state ambitiously targeted shared technology across government.

The complexity of the environment was incredible. Data within the state were stored on myriad devices in numerous formats, across so many data centers that no one could get an accurate count. With support at the gubernatorial level, the first generation of consolidation began to take shape around the state's network. Once success was achieved in the communications arena, the focus shifted to mainframe centralization.

In 2001, the Michigan Department of Information Technology was created by Executive Order, centralizing the state's ICT resources in an enterprise-managed department. More than 1,600 ICT employees were reassigned from the agencies in which they worked and whose business they knew into this new department.

Business was to change, but no roadmap was provided. Customers and employees were not shown how their needs would be met or which measurable benefits this new department would achieve. A huge cultural change was required for this enterprise approach, but the organization was not defined. Roles and responsibilities were not articulated and operations continued to function in a decentralized manner. During the initial days of the consolidation, the state's employees continued to get the job done in spite of the many unanswered organizational questions. Working (and sometimes stumbling) together, the vision for MDIT rapidly took shape, strategic plans were developed that aligned with the governor's Cabinet Action Plan, and progress began to come in waves.

Michigan successfully consolidated 70 e-mail versions to two and merged 700 state e-mail servers to 70 centrally hosted and maintained servers. By the end of 2007, data were moved from 29 hosting locations to three state-of-the-art secure data centers where massive amounts of data are now stored, utilized and monitored. In telecommunications, Michigan took a monumental step forward with the successful implementation of VoIP within the Department of Human Services, where 7,000 lines were converted to VoIP technology at more than 80 locations.



Infrastructure Services

Infrastructure Services teams are proud stewards of the legacy left by our predecessors. Each generation has added building blocks for the next and established a heritage of excellence spanning nearly three decades. Our chapter in this story will reach further and dig deeper than ever before. This is truly a defining moment for ICT in Michigan. It is no accident that today we stand so close to the finish line. Every project, process improvement and difficult decision has brought us to this point. It has been a long road, and our teams have made mistakes along the way, but the commitment to learn from them and to create a better future has always prevailed. We did not make the promises of consolidation, but we will be the team to deliver them.

Our consolidation journey has taught us about the barriers that lie ahead. In Michigan, our strategic next steps are clear – to expand beyond the traditional borders of government and lead the way toward true partnership with our businesses, local governments and fellow states. More than ever before, we stand on the cusp of realizing the true promises of e-government.

Commonly held myths were dispelled:

Myth #1: Consolidation costs too much

The need to reduce costs has been the primary reason our consolidations were successful. Our teams have found ways to make progress within the tightest budget constraints in our state's history.

Myth #2: There are too many federal and legal requirements

Our consolidated services and hosting centers have met every technical and legal requirement facing them. The rated service models developed for our IS organization have passed federal guidelines and created a financially viable structure based on business demand.

The barriers of the past can be overcome, but we face additional hurdles as we continue to strive for cross-boundary collaboration and government transformation. They center on two issues: trust and fear of losing control.

There are no quick fixes to deal with these issues effectively. Infrastructure Services must first prove that our teams have instituted operational excellence. We have come a long way, but we have to go much further. If the State of Michigan is to be the catalyst for collaboration among cities, counties and municipalities, our organization must be the model of disciplined, uniform and repeatable excellence. Our challenge is to answer our critics with credible facts, objective metrics and unprecedented customer service. We must face the fear of the unknown.

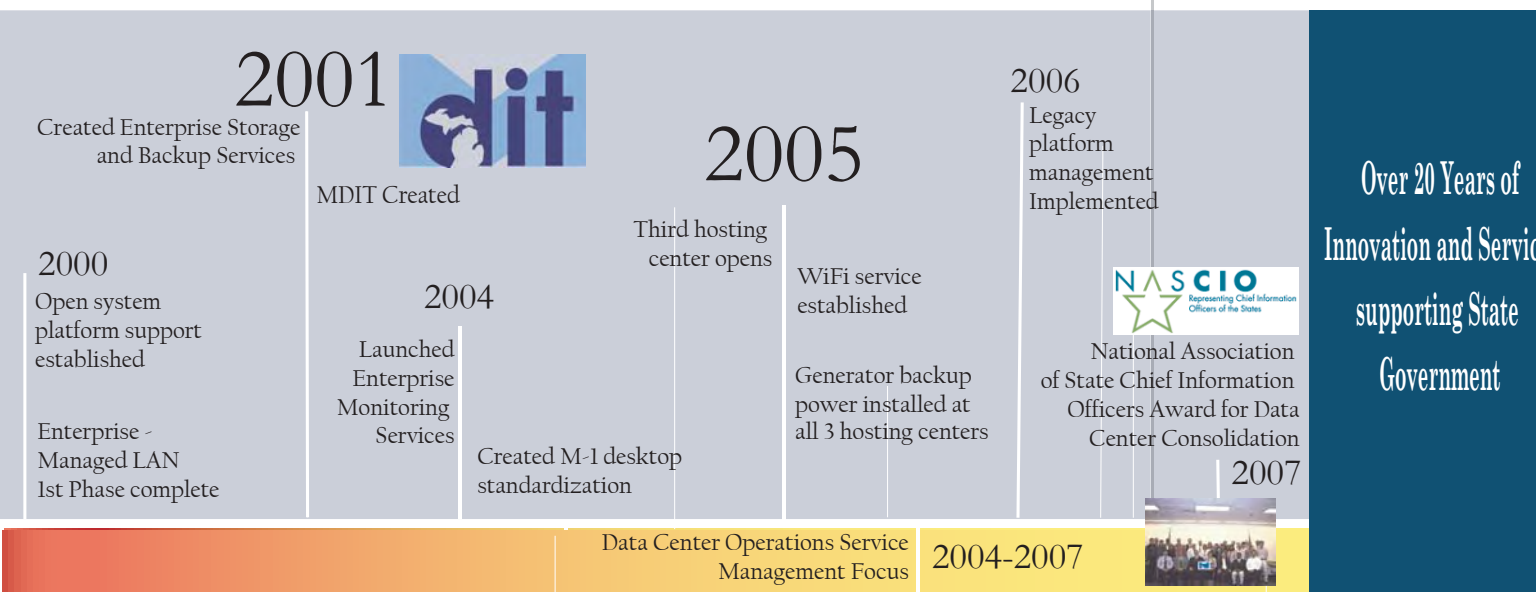


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Appendix J | Enterprise Architecture

Enterprise Architecture

Vision of Action

We are pleased to present the 2010-2014 Enterprise Architecture (EA) Plan to fellow citizens, State of Michigan employees and valued partners. Enterprise architecture at the State of Michigan has gone through many stages during the last 10 years. Through the early part of this decade, the Michigan Department of Information Technology (MDIT), formed through Executive Order, began a series of broad information and communication technology (ICT) consolidation projects.

Telecommunications and Network Services was one area to begin formal consolidation, bringing together agency ICT networks and building a Lansing-area local area network and an outstate wide area network. Agency telephone equipment and services were also consolidated. Other consolidations followed. These included:

- creation of the e-Michigan central Internet team and the Michigan.gov portal.
- consolidation of state e-mail architecture and services.
- consolidation of agency data center environments into the three DTMB-managed information technology hosting facilities.
- formation of a multiagency ICT Customer Support Center.

In 2006, soon after achieving the accomplishments listed above, the Department of Information Technology established the Office of Enterprise Architecture (OEA). OEA borrowed successful practices and models from other enterprise architecture programs and defined the State of Michigan enterprise architecture framework and supporting processes. Enterprise architecture acts as a strategic planner and architect for the state's ICT programs. Its role as a leader in formulating and advancing a vision for those programs is reflected in the following goals:

- Maximizing the state's return on ICT investments
- Providing sound advice based on objective facts and measurable outcomes
- Improving reliability, predictability and consistency of ICT solutions
- Reducing costs to implement and operate ICT systems
- Reviewing and consulting on designs and assessments
- Encouraging a technology model that leverages solutions for multiagency use
- Aggressively pursuing new and promising technologies to meet known business requirements
- Facilitating issues among other information technology groups to move difficult issues forward for the good of clients
- Aspiring to be a learning organization
- Clearly and consistently documenting solutions, pertinent research, findings, decisions, recommendations, standards and all other outputs for immediate and future guidance

In Michigan, we are called upon to be stewards of the public trust and tax dollars. We believe our investment in technology demands a rigorous and structured approach that will deliver the most benefit to citizens. The enterprise architecture process leverages our extensive planning in a way that aligns technical investments with public service needs.

Michigan's journey through enterprise architecture has taken many turns, encountered a few high hurdles and seen some remarkable successes. The pages that follow outline our vision, strategy and the tools we use to maximize our strengths and address our challenges.

A Look at the Great Lakes State

Michigan's agencies deliver essential services, making the state a better place for Michigan's 10 million citizens to live and do business. Michigan's Department of Technology, Management & Budget (DTMB) is responsible for more than 3,350 servers and 55,000 computers. With such a large operation, enterprise architecture—the planning and aligning of technology to support public service needs across all state departments—is a critical mapping and planning process used by DTMB.

Enterprise Architecture

Which state services does DTMB support? All of them. Whenever a citizen files income tax, pays or receives child support, wins the lottery, applies for a driver's license or starts a business, DTMB helps make it happen. As a comprehensive roadmap and framework for the state's technology, EA designates the on-ramp and off-ramp of technology as well as ICT standards and priorities to enable the state's business processes and achieve mission-specific objectives in a timely and cost-effective manner. With today's tight budgets, providing technology solutions that save time and money for government and citizens is a top priority. Disciplined innovation is a requirement. DTMB's Office of Enterprise Architecture maps out its technology innovation. In consultation with key stakeholders, OEA sets the direction of technology, driving ICT adoption and governance and enabling Michigan to move forward.

Benefits of EA

Alignment to the mission: Putting your money where your priorities are

By setting standards and direction, EA positions technology investments where they do the most good. EA maximizes technology, ensuring the state has necessary data and tools to deliver services in the most efficient way across all government service delivery systems.

Reduced costs: Giving back to the bottom line

The goal of Michigan's EA efforts is to reduce ongoing ICT costs through volume purchasing, fewer support staff and simpler upgrades. Faster implementation and a simplified easier-to-support environment result in better value and an improved bottom line.

Increased agility: Never having to say "We can't do that. Our system isn't built that way."

EA frameworks provide a ready reference when major changes are demanded on tight time frames. Mapping standards and services with applications allow developers to quickly assess impacts and respond to change. A comprehensive architecture also enables faster design of new systems and ensures a smooth, rapid response to business needs.

Improved security: Keeping hackers off your back

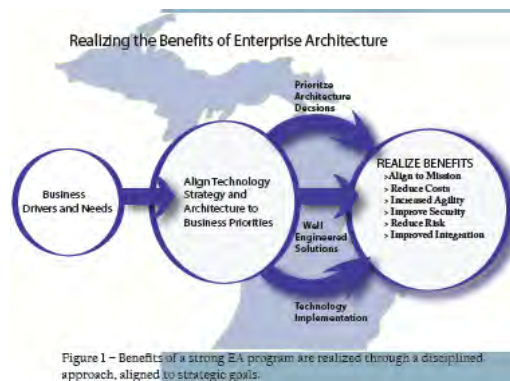
In IT, security issues are a fact of life. Each day, the State of Michigan blocks approximately 280,000 e-mail spam and virus attempts, 17,000 scans by hackers and nearly 14,000 potential Internet browser-based and Web-defacement attempts. Through the use of strong automated protection tools and mandated security standards, the risk of identity theft, intrusion, data loss and system downtime is dramatically reduced.

Reduced technical risk: Downtime is detrimental to our citizens

EA lends itself to a stable and standard technical environment. The ICT planning that happens through enterprise architecture decreases reliance on old, unsupported technology, allows current resources to support more and reduces the need for expensive specialty support staff. This translates to fewer systems outages and faster recovery times.

Improved interoperability and integration: Immediate, reliable information is key

Defining standards and specifications that enable state systems to talk to each other makes it easier to integrate multiple systems. EA allows the state to make accurate information available, decreases the cost of sharing information and ensures systems communicate correctly on the first try and over time.



Enterprise Architecture

Michigan's EA Framework

Michigan's enterprise architecture framework consists of four areas: public service architecture, information architecture, solution architecture and technical architecture. This section provides more details on each area.

Public Service Architecture (PSA)

First and foremost, PSA focuses the state's limited technical resources where they matter most to clients: state agencies and citizens. We begin by obtaining a clear understanding of the goals, constraints and critical success factors. Then we define and document the processes most critical to state operations. With PSA, Michigan departed from traditional enterprise architecture bias and terminology. The unique nuances of public service and a need to clearly articulate priorities for technology staff demanded a different approach. Typically labeled business architecture in the private sector, public service architecture directs government in the handling of necessary services for citizens and sets the stage for the other three areas of Michigan's EA framework.

Information Architecture (IA)

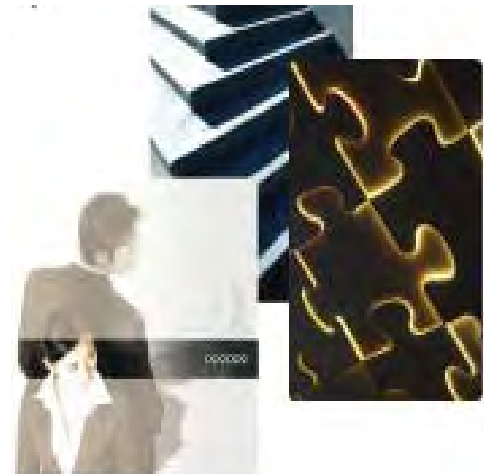
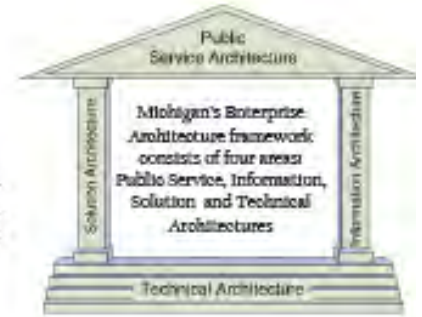
Information is the key component of any system. For the State of Michigan, information architecture coordinates the use, reuse and sharing of state data. It models, classifies and leverages information needed to support key systems and enables cross-boundary initiatives with federal and local governments. IA focuses on identifying and standardizing innovative ways to use information.

Solution Architecture (SA)

Solution architecture is the framework and approach that governs how applications and systems are designed within the State of Michigan. SA ensures that technology aligns with goals outlined in the public service architecture and with data standards and structures from information architecture. SA streamlines the fulfillment of requirements and jump-starts the design process.

Technical Architecture (TA)

Standard tools are the hallmark of a strong enterprise. TA is the technological toolkit that serves as the foundation of all ICT initiatives. It outlines the lifecycle and appropriate use for all state hardware and software. This framework area provides proven models for efficiently implementing standards-based systems.



Enterprise Architecture

Interactions Among the Disciplines

The value of enterprise architecture is derived from the sum of its parts. As shown in the diagram below, the interactions within the EA framework create a complete picture of the processes that support sound technical decisions, an efficient organization and the creation of sustainable enterprise solutions.

Public service architecture captures changing agency needs, strategic goals and environmental influences and translates them into information technology priorities for the state. PSA defines what is most important and answers the question, "Why?"

Both information architecture and solution architecture use the priorities and processes generated from PSA to focus organizational resources where they will have the most impact. IA adapts information management standards to fulfill the state's requirements. Solution architecture creates a repository of high-level design solutions. Together, these framework areas answer the question, "What?"

Technical architecture is used in conjunction with the SA high-level designs to guide the assembly of technology components into complete solutions that can be leveraged to meet the needs of multiple agencies. TA combines outputs from the other areas to drive standardization of products and develop consistent implementation and operational policies. This answers the question, "How?"



Figure 2 - The processes inherent in the four disciplines of EA interact in a continuous cycle. Initiatives may begin at any level.

Enterprise Architecture

Public Service Architecture

Public service architecture uses Michigan's core priorities to determine the focus of enterprise architecture. It captures the state's most important work activities, assets and processes. PSA focuses Michigan's limited technical resources where they matter most. To be truly effective, enterprise architecture must begin with a deep understanding of what drives the state. It is essential to align EA efforts with tangible business plans that have resources (money and people) assigned to them. Too many EA efforts fail because they lack detailed commitments, realistic scope and dedicated resources from the organizations the architecture serves.



Assessment and Progress

Michigan leverages the state's executive branch planning process—the Cabinet Action Plan (CAP)—to define and reinforce technology initiatives. The Office of Enterprise Architecture examines the CAP and the ICT strategic plan to determine the most beneficial enterprise architecture activities. This analysis results in a list of key drivers of Michigan's PSA and a specific work plan with detailed commitments.

Statewide Business Drivers

In 2003, Michigan's governor set six priority areas to drive business planning across all state departments. In 2010, work continues in these priority areas:

- **Creating Jobs Through Diversification**
Governor Granholm's continuing effort to remake Michigan's economy
- **Creating a Well-Educated, Highly Trained Workforce**
Doubling the number of college graduates and giving every person the tools for success in the 21st century economy
- **Protecting Michigan's Citizens and Their Pocketbooks**
Safeguarding the physical and financial well-being of every Michigan resident, particularly our most vulnerable citizens

Agency-specific Business Drivers

Each agency also has business drivers used to develop technology plans specific to its needs. These include:

- creating an education lifecycle that presents a student's information as a common view.
- improving homeland security by integrating information and resources of all areas of Michigan's criminal justice community.
- protecting Michigan's citizens and communities by operating safe and secure prisons.
- improving state and local preparations to deter, prevent and respond to disasters or terrorism.
- continuing and improving the management of our state's natural resources.
- increasing access to state recreation areas such as parks, forests, campgrounds and marinas.
- protecting Michigan's citizens, retail markets and livestock.
- retaining and strengthening Michigan's manufacturing, agriculture and tourism base by creating new jobs.
- keeping Michigan's people and commerce moving by improving roads and bridges and increasing highway safety.
- expanding access to quality, affordable healthcare.

Outcomes and Targets

The following outcomes will be achieved through public service architecture. DTMB will develop an enterprise architecture work plan that aligns with Executive Branch and ICT

Enterprise Architecture

Strategic Plan priorities, detailing tasks and deliverables for the following activities:

- Service-oriented architecture (SOA) (ongoing)
- An enterprise strategy on identity and access management that delivers a rated and managed service (2012)
- Refreshed enterprise data warehouse architecture (2012)
- A comprehensive mobile application strategy (2010)
- A comprehensive plan focusing DTMB resources on prioritized EA initiatives and activities (ongoing)
- Michigan Unemployment Insurance Agency system rewrite (2011)

Information Architecture

Information architecture (IA) is the process of maturing and governing the information needed to support the business processes and functions for state and cross-boundary initiatives. IA spans organizational boundaries and builds on the requirements identified in the PSA. It is primarily expressed in the form of standards for the creation of data models, information flows and analysis of decision-making criteria for each business activity. IA also addresses information access, data security, privacy and business and information continuity.



Assessment and Progress

Michigan's IA has grown exponentially as a result of interagency collaboration on specific agency projects as well as related DTMB architecture and standards programs. The significant progress marks the quality and success of existing programs and establishes the baseline for developing the information architecture approach.

Data Sharing

Sharing data leverages federated, but definitive, information sources across areas to serve diverse public needs. This practice already exists among state agencies and federal and local units of government as well as vendor partners. Types of shared data include hunting licenses, unemployment data, driver's license information, personal protection orders, customs data, Medicaid information and immunization histories. These and many other data types are used to detect fraud, increase compliance and protect citizens.

Data Warehousing and Business Intelligence and Analytics

The practice of data warehousing and advanced business analytics are critical components of DTMB's decision support systems that allow the department to maximize shared data. To date, 2.3 terabytes of data are consolidated into our statewide warehouse. Analytics tools have helped:

- locate 15,000 noncustodial parents, enabling enforcement action and child support collection.
- save \$75 to \$100 million via statewide healthcare analysis with the Department of Community Health.
- decrease fraud and error rates in day care, food assistance and eligibility, saving more than \$61 million.
- increase productivity by enabling the annual review of more than 452,000 tax returns by the Department of Treasury's tax audit and compliance staff.

Enterprise Architecture

Cross-Boundary Information Sharing

Michigan's cross-boundary information-sharing initiatives are expanding the use and communication of information across state agencies and beyond state government. Activity is underway in areas such as health information networking, permit application processing, geographic information sharing and land use management.

The state's EA program is developing standards for sharing the massive amounts of information available from federal, state, local and private entities to improve decision-making and add citizen value. Examples of cross-boundary information sharing underway include:

- sharing location data via spatial Web services.
- standardizing electronic payments to the state with the Centralized Electronic Payment and Authorization System initiative.
- creating a Michigan Information Operations Center, also known as a fusion center, to expand information and intelligence sharing between homeland security partners.

Business and Information Continuity

A complete review of business and information continuity plans is in progress at the State of Michigan. Continuity requirements are being refreshed for the business functions supported by the most critical state systems in consultation with clients. Simultaneously, an ICT business and information continuity core team is documenting existing disaster recovery and continuity capabilities and capacities available within the ICT organization to support those business functions. Once these reviews are completed, projects will be initiated to close any exposed gaps.

Outcomes and Targets

Michigan's information architecture defines the information management needs and goals identified through the public service architecture process, including:

- establishing a state agency privacy council with privacy officers in place supporting state executive branch agencies (2010).
- completing classification of data for each state agency (2012).
- defining owners for all information entities (2013).
- establishing a common way to describe a citizen and the way the term is used in information systems (2012).
- providing common data standards for all agencies and other government entity information (2013).
- reducing data management centers to three (2010).
- personalizing views of content and applications for citizens, businesses and state employees (2010).
- implementing a consistent data exchange approach (2011).
- defining data point-of-recovery objectives for critical business information (2011).

Solution Architecture

Solution architecture (SA) defines the standards that allow DTMB to assemble technical components into solutions by quickly identifying proven, standard and secure solution designs that can be leveraged to meet business needs. Solution architecture is expressed in terms of the solution patterns governing application design and evolution. Value can be measured in terms of reliability, scalability, performance, security and decreased support and maintenance costs.



Enterprise Architecture

Michigan's approach to EA intentionally separates solution architecture from information and technical architecture. The key differences among the three disciplines involve the deliverables and outcomes, as described in the sections that follow.

SA Assessment and Progress

While the bulk of infrastructure and many key enterprise systems are leveraged across the state, Michigan is still in the early stages of assembling a strong portfolio of standard solutions. Although progress has been made with a number of key systems (financial and accounting systems, a single statewide portal, messaging consolidation, a thin-client center of excellence, etc.), most software development is still done within teams dedicated to a single department. A common solutions engineering methodology is used to standardize technical reviews (solutions assessments) and requires all new development to leverage solution architecture.

Solution Patterns

Solution patterns serve as the high level of system design templates. Patterns document the logical layout and form of a technology solution. Solution patterns do not specify particular technology products but focus on the interactions of components. For example, when building an Internet Web application, the solution pattern will identify the type of servers needed (application server, Web server, database server) and the type of protective measures to ensure security (firewalls, security appliances, etc.).

Development of a pattern is done through an iterative process. Using the concepts highlighted in the EA framework, the Office of Enterprise Architecture commissioned a team to develop a base set of solution patterns. Working with a small work group of DTMB solution development and support team members, the EA core team identified highly mature, broadly utilized and stable solutions. These solutions served as the basis for the initial solution patterns and reference models.

Once a solution pattern is completed, technical architecture processes are used to develop reference models and standards. Each solution pattern has multiple reference models and standards.

Reference models and standards give DTMB technical teams a complete reference of recommended products, best practices, designs, integration considerations and use standards for every solution pattern completed.

To date, solution patterns have focused heavily on Web-enabled applications, but as we gather information through our EA solutions review process, we will establish a repository of core solution patterns and reference models that provides a preferred architecture approach for the majority of technology projects.

Outcomes and Targets

Following are the State of Michigan solution architecture effort targets:

- Solution patterns will be established for the following areas (2010):
 - Statewide collaboration architecture
 - Service-oriented architecture
 - Identity and access management
 - Comprehensive mobile application strategy
- Solution patterns will be established for the following areas (2012):
 - Data warehousing and business intelligence
 - Cloud storage alternatives for technology solutions, including internal self-service on-demand storage and external Internet-based cloud storage.
- The EA solution review process will be used to review 100 percent of new technology projects (2010).
- The formal solutions review process will be used to assess 90 percent of existing systems (2012).

Enterprise Architecture

Technical Architecture

Making sound technology decisions and setting clear direction for the enterprise is one of the most visible EA activities. Maintaining a plethora of disparate products raises costs and reduces DTMB's ability to support the enterprise. Technical architecture elements are coupled with solution patterns from solution architecture to form a detailed picture of technology. TA is the foundation of the EA framework. It is the process that selects standard products, mandates best practices for their implementation, and manages each product's lifecycle throughout the enterprise. Decision making in technical architecture is guided by the following guideposts developed within the EA framework areas:

- **Best Practices and Usage Standards:** Information captured from institutional knowledge as well as research vendors and partnerships
- **Policies, Standards and Procedures:** Developed within the TA as well as by administrative or legislative policy directive
- **Current Architecture Solution Patterns and Reference Models:** Detailed descriptions of existing and implementations of standard solutions patterns
- **EA Portfolio Assessment Tool:** Although used in all four framework areas, portfolio assessment is especially useful in TA. Objective data is plotted, which jump-starts discussion and analysis,

Technology decisions also are informed by vendor partners. To this end, DTMB has created multiple venues for input. In addition to the traditional request for proposal route, vendors may introduce their product to the State of Michigan via the Horizon and Spotlight programs. Horizon provides access to executive leadership monthly. Suppliers whose products match state priorities may provide brief presentations to the leadership team. Through Spotlight, suppliers may provide in-depth demonstrations to executives and subject-matter experts. These forums are productive, not only for the vendors interested in doing business with the state but for DTMB, which is interested in keeping up with market trends and offerings.

TA Assessment and Progress - Setting Product Standards

Setting standards is not a trivial task. The Office of Enterprise Architecture must consistently weigh the unique government requirements for open competition with the realities of staff skill sets, cost and the pressure to lower state expenditures. Direct involvement from state agencies is facilitated through DTMB's executive steering committee, the Michigan Information Technology Executive Council (MITEC).

The entire process is designed to be inclusive and iterative, balancing ongoing support requirements with the rapid pace of technology innovation. The technical architecture areas are driven by the needs highlighted in the other framework areas as well as the need to address the emerging technologies the state will likely adopt.

Product standards developed in the TA include guidelines for installation, configuration (specific versions) and parameters. This detailed information augments and drives the reference models—describing how specific products can be combined to deliver a solution—from the solutions architecture. The formal process for developing product standards is detailed on pages 27-29. Some key standards developed this year include:

- Statewide office automation (directory services, desktop management, desktop OS, file share, etc.)
- Hosting centers (facilities, installation and configuration of equipment)
- Voice over Internet protocol (VoIP)
- Wireless LAN and communication
- Open-source products



Enterprise Architecture

TA Assessment and Progress - Mapping a Product's Lifecycle

By analyzing industry trends and defining best practices around the use of technology, technical architecture maintains and develops technology lifecycle roadmaps. These roadmaps drive adoption and regulation of ICT. Information on technical products is gathered from supporting vendors, and strategies for use within the state are planned on a four-year schedule. The roadmaps classify each technology by explicit version or release. EA, working with technology subject matter experts (specialists), manages the identification, classification and strategic direction of the use of specific technology at the state. EA conducts semi-annual updates to technology lifecycle roadmaps based on industry changes and technology adoption and implementation.

Objectives and Targets

Following are Michigan's technical architecture objectives and targets:

- Continue to remove redundant or outdated technologies from the technical environment (ongoing)
- Achieve double the average CPU utilizations for managed servers through virtualization (2010)
- Enhance processes to drive planning and budgeting for technology governance (2011)
- Administer and manage 80 percent of all solutions according to approved operational policies and standards (2011)
- Achieve zero annual growth in total physical number of servers under management through virtualization (2011)
- More than half of solutions rely on unsupported products; migrate versions to approved, standard platforms (2011)
- Design and implement 90 percent of solutions according to approved reference models (2012)

Implementing Michigan's EA Framework

The concepts of Michigan's EA framework are more than academic theory. When coupled with a comprehensive planning process, they coordinate and drive technology activity for the state.

The following section outlines the structure and methods used to turn the framework into actionable initiatives. A work plan and resource commitments ensure progress. Critical processes and tools ensure EA is a sustainable effort that will transform our state through technology. Each element is discussed below.

The EA Work Plan

The four disciplines allow enterprise architecture to plan and realize the vision for Michigan's technology future. This work plan is derived from the planning efforts in the PSA, which represent a portfolio of initiatives grounded in true business priorities.

The work plan is approved by DTMB executive management and a client-based steering committee (MITEC). Progress is monitored every week for deliverables and issue resolution.

The Office of Enterprise Architecture's multiyear plan extends beyond the current fiscal year. The plan is updated as needed to reflect changing businesses needs, budgetary fluctuations and the rapid pace of technology innovation. DTMB's EA work plan for 2010-2014 is presented on the pages that follow.



Enterprise Architecture

Resource Commitments and Governance

Team Charter

The EA Core Team is at the center of EA activity. The Office of Enterprise Architecture facilitates this cross-departmental team of DTMB technical leaders and specialists. It includes staff appointed from all areas of the DTMB organization: Contracts and Procurement, Enterprise Security, Office Automation Services, Telecommunications, Data Center Services and each software development group serving state agencies.

The Enterprise Architecture Core Team oversees the assessment, adoption and use of technology for the State of Michigan. Members establish and utilize processes and procedures to assess technology needs across the four EA framework areas. The architects in the EA core team have several roles. They:

- oversee and advise DTMB architecture workgroups and standards development teams.
- work with the DTMB Contract Office to establish the criteria for technology bids.
- develop processes for information dissemination and communication.
- maintain and oversee the processes to select, review, evaluate, approve or deny and prioritize enterprise architecture to include ICT standards, policies, strategies, architectures and guidelines.
- conduct technical process engineering.
- perform EA portfolio analysis.
- oversee technology exception reviews.
- review and evaluate vendor proposals.

Authority

Decisions of the EA core team are binding for the DTMB organization but are subject to review and approval by DTMB executive management. Appeals for the EA core team's technical decisions are sent to the Executive Technology Review Board, which includes:

- Deputy Director of Infrastructure Services, DTMB
- Information Officer (appointed by Agency Services Deputy Director, DTMB)
- Chief Information Security Officer
- Director, Telecommunications, DTMB
- Director of Office Automation, DTMB

The EA core team is empowered to appoint persons for architecture workgroups to do technology assessments and adoption planning, standards development teams, vendor briefings and establish processes, as necessary, to enable the core team to carry out its responsibilities.



Figure 3 – The EA core team is a combination of roles that pull together the technology leadership across the DTMB organization.

Enterprise Architecture

Portfolio Assessment

Making EA decisions and prioritizing the EA agenda is a constant challenge. Michigan's EA framework is designed to be pragmatic and flexible, allocating resources where they do the most good. This more flexible approach means that even with the high-level priorities defined in the public service architecture, EA must have the ability to quickly assess the portfolio of initiatives, projects and tools in each of the four areas of the EA framework.

Every day the Office of Enterprise Architecture faces difficult technical and project priority decisions that have a broad impact on the state.

The EA portfolio assessment model is the premier tool used to assess activities in any of four EA areas. Whether evaluating a new public service offering, an exciting data collaboration project or evaluating the state's desktop tools, this model takes a hard look at objective factors and jump-starts the decision-making process.

This simple model assesses any activity in the EA portfolio across two dimensions:

- The first dimension quantifies the utility's initiative or technology by determining its level of adoption across state agencies, overall visibility and intrinsic business value.
- The second dimension is its level of maturity, which is measured using a solution for compliance with defined standards, the ability to maintain it, its scalability and whether its implementation follows best practices.

Quadrant 1 – Underutilized Solutions

Solutions that cluster near quadrant 1 are highly mature with relatively low utility across the enterprise. This practice, technology or activity is a great target for aggregation and consistent, coordinated management. These types of initiatives or products represent areas where cross-boundary implementations and cost savings can likely be achieved by establishing a “center of excellence” that leverages resources in the most efficient manner possible.

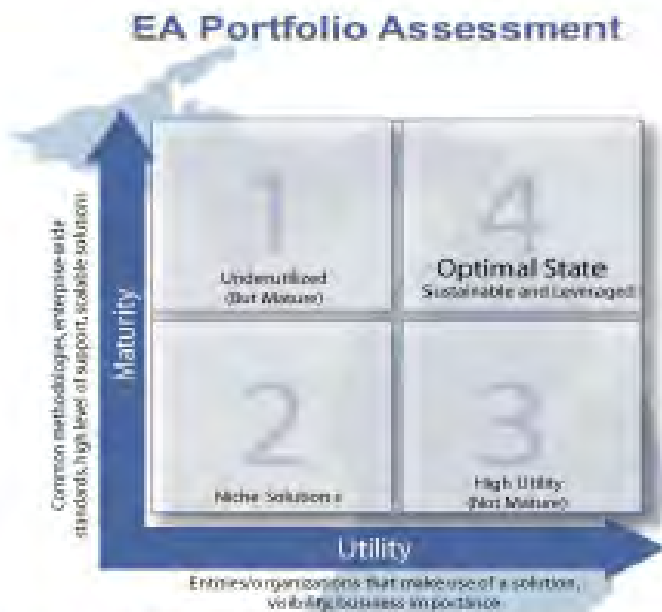


Figure 4 – The EA Portfolio Assessment Model: Each EA initiative under consideration or technology decision is evaluated on two key dimensions.

Enterprise Architecture

Portfolio Assessment (Cont.)

Quadrant 2 – Niche Solutions

Solutions and activities that cluster near quadrant 2 do not demonstrate a high degree of maturity, although they are likely mature enough to be considered sustain-able given their limited installation and use. Unless overall business requirements change to raise their importance to the enterprise, these solutions typically do not merit resource investment as the statewide impact of EA investments would be minimal.

Quadrant 3 – High Utility Solutions Lacking Maturity

Solutions that cluster near quadrant 3 have high utility but low maturity. These activities most likely surround critical legacy systems developed and implemented before Michigan's IT consolidation. Examples include disparate call centers, ERP systems and permitting systems, to name a few. When critical functions are implemented with a wide variance of technical solutions, the enterprise can be exposed to significant risks, unsustainable levels of staff commitment and unnecessary financial exposure. When these systems are at the point of investment (typically a rewrite or major upgrade), EA works to justify the investment in standardization, process improvement and stabilization to move the entire enterprise to a single solution.

Quadrant 4 - Optimal State (Enterprise Solutions)

Solutions that cluster near quadrant 4 should be held up as examples to the enterprise. Where possible, enterprise architecture drives adoption of the standards and methodologies employed by their design, development and support teams across the entire ICT organization. This dissemination of best practices encourages collaboration among technical teams and is an important area of focus for the Office of Enterprise Architecture.

Moving to Optimal

In the world of technology, optimal is golden—optimal usage, optimal performance, optimal cost effectiveness. It is therefore the goal of any EA activity to move Michigan toward optimal ICT performance, as reflected in figure 5. Each activity, initiative or technical solution falls into a particular realm of ICT evolution or quadrant, depending on the present state of that activity. Different strategies are necessary to reach the optimal (quadrant 4).

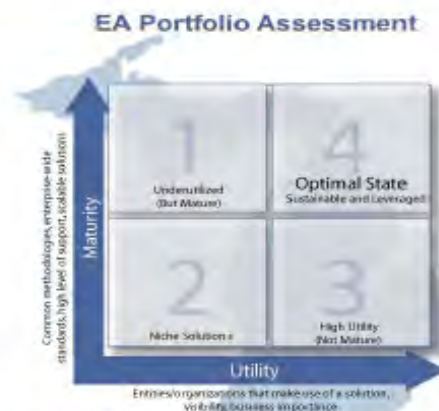


Figure 4 – The EA Portfolio Assessment Model: Each EA initiative under consideration or technology decision is evaluated on two key dimensions.

Enterprise Architecture

Moving to Optimal (Cont.)

Solutions that fall into quadrant 1 are recognized as mature within the state but underutilized. EA works with the primary owners of these solutions, determining how to make them broadly available for use, thereby avoiding the costly and unsupportable problem of creating multiple solutions for the same business problem. In other words, EA provides a means for enterprise-wide solutions so we avoid recreating the wheel from agency to agency.

The primary EA activity for quadrant 1 solutions is determining ways to leverage existing, robust and supportable platforms across the state. Enterprise-wide centers of excellence are one approach in active use. An example of EA at its finest is the approach taken for the Citrix Meta Frame architecture. DTMB established an enterprise-wide center of excellence based on the work done to provide a robust and stable implementation of Citrix for one state agency. Projects with a similar demand for a Citrix solution are directed to the center of excellence, utilizing the skills and experience of the supporting staff for this mature approach for implementing Citrix.

Quadrant 2 activities are unlikely to warrant additional allocations of limited resources. Activities in this quadrant merit investment in improving their maturity only if utilization is expected to increase enough to represent a substantial improvement in business value.

Solutions that fall into quadrant 3 are recognized as opportunities for standardization and migration to better-supported technologies. Solutions in this quadrant are heavily used but may represent aging technologies, one-off solutions or systems that are brittle and difficult to support.

Such a scenario is identity and access management (IDM), wherein several applications throughout the state have nonstandard approaches for identity management. This includes custom-made solutions for storing usernames and passwords, custom extensions of commercial products and nonstandard deployments of technology product stacks. At the time these applications were developed, there were no broad standards for IDM or application delivery. Recently, the EA team spearheaded a request for proposal for an enterprise identity and access management system, including an application portal for the proposed solution. By developing a common approach to IDM, the EA team will provide a means for resolution that affords improved standardization and supportability. The IDM solution and the accompanying portal are clear examples of moving solutions from quadrant 3 toward quadrant 4.

EA has prioritized evaluation of heavily used technology solutions to develop and implement standard architectures. The EA standards development process, detailed in the next section of this document, is being followed to mature and manage a standard set of technologies. Architecture reference models with product stacks reinforce the proper use of the standard set of technologies. EA solution assessments are the means through which project teams are directed to use standard technologies and reference models.

Standards Development Process

DTMB's Office of Enterprise Architecture drives the process of technology adoption and governance. One of enterprise architecture's roles is to deliver direction and guide decisions on the evaluation, adoption and implementation of technologies across state government. An active role in selection and adoption of new technology is important, but guiding the planning and migration from aged and expired technology is also critical to serving the business needs of our client agencies. Through this process, we've adopted the phrase "controlled innovation."

Working hand-in-hand with our Agency Services teams, EA governs the method of introducing technology, assessing total cost of ownership, mitigating risk and moderating the pace of change. A careful balance is needed here: unchecked acceptance of technologies results in too many solutions, a diluted ICT talent pool and a challenge in the ability to leverage solutions across agencies and the enterprise. Lock-down restriction or limiting technology adoption limits the services and benefits we can deliver to our citizens. Controlled innovation allows us to balance advancements in the technology industry with an organized, business-oriented technology planning and governance effort.

To keep abreast of new technologies and their potential use and benefit to the state, DTMB has formal programs and methods to review new technology solutions. Critical input and research is

Enterprise Architecture

also provided by industry analyst organizations, including Gartner, Forrester and Norex. Finally, our decisions are also guided by best practices from state and national technology communities such as the National Association of State Chief Information Officers (NASCIO). Vendors also have an opportunity to submit their technology solutions through the procurement process in response to a state request for information or request for proposal. Still other technologies enter into use through state and federal policies and programs.

To organize and plan for all of the upcoming and outgoing technology solutions, the State of Michigan utilizes technology lifecycle roadmaps.

A Focus on Standards

Standards and their enforcement are the backbone of Michigan's approach to meeting many of its strategic goals and objectives. As such, this process plays a major role in the state's technical architecture. Standards are defined and documented at several levels throughout the Enterprise Architecture process. There are two chief types of standards within this process:

Standard Solution Patterns

Standard solution patterns are concerned with the overall requirements of a given technology domain or process. These standards define what a technology should accomplish, its integration requirements, environmental limitations and business issues it must resolve.

Reference Models and Product Standards

Reference models and product standards deal with specific technology product selections. Including preferred version numbers, engineering and configuration specifications and support model definitions. The standards process was created to maintain consistency from the initial recognition of a business need to the ultimate selection of technical solution and vendor. For this reason, DTMB's standards development model overlaps areas within Enterprise Architecture and acts as a consistent oversight check and balance to ensure products meet needs.

Once a business need is recognized, the standards development team prepares the relevant solution pattern. This process consists of requirements gathering sessions involving a cross-functional team of staff from client departments, interested parties and the Office of Enterprise Architecture staff. Once the appropriate solution pattern has been built, the team analyzes whether a reference model can be built from existing product standards. If not, then research and proof of concepts are performed with careful effort to keep the research and development focused on the key criteria of a successful technical solution.

During the proof of concept (POC), the solution pattern and potential reference models are reviewed and questioned for their return on investment potential, viability given the capabilities of alternative solutions and migration challenges faced by particular departments. Additional industry information and analysis are also utilized in the POC/pilot to support the team assessment and planning efforts. The information gathered is used during a product selection and procurement phase. Once the solution is available to the state, a formal pilot of the technology is conducted. This pilot identifies the optimal configuration, engineering issues and support models of the technology, in addition to any other associated best practices.

These items are documented and become part of the product standard for that given technology and its use. In many situations, as described above, DTMB teams make decisions on the introduction of new technologies and the retention or replacement of existing technology solutions. The entire process is iterative and responsive to the changing technical environment.



Figure 6 – Enterprise Architecture is fully integrated with the State's common engineering philosophy. It offers many benefits from a quality assurance perspective as well as a qualitative perspective.

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Appendix K | MiCloud

MiCloud

In March 2010, Michigan's Department of Information Technology consolidated with the state's Department of Management and Budget. The new Department of Technology, Management & Budget (DTMB) is building a full array of service and functional relationships across governments and the private sector. Seeking to fully leverage the confluence of technology and management, Michigan is strategically aligning resources and targeting cloud-enabled opportunities for action.



The Michigan story for cloud computing is one of evolution, maturation and economic necessity. Now in its eighth consecutive year of budget reductions, this hard-hit Midwestern state is adopting cloud-computing practices to transform service-delivery capabilities. Other elements driving this momentum range from managing shifts in client and staff expectations to maximizing investments in infrastructure.

The Michigan approach, as detailed below, supports, drives and enables federal, regional and local collaboration as well as private-sector partnerships.

The Michigan Approach – MiCloud

Michigan's cloud-computing program, dubbed MiCloud, provides governance and direction for cloud-computing efforts. The MiCloud initiative is charged with proving, piloting and sourcing the state's government cloud offerings. With a focus on transforming government operations, Michigan is moving toward leveraging the cloud to provide clients with rapid, secure and lower-cost services.

Recognizing that not all functions are cloud appropriate today, MiCloud is a key component of Michigan's big-picture sourcing strategy. Through MiCloud, Michigan is using a unified and tiered approach to manage both primary and secondary business support functions. Targeted functions are based on business criticality, security requirements and legal constraints. These include:

- **Government cloud:** Primary business support functions that are critical to government operations or impose unique security requirements and legal constraints.
- **External and commercial clouds:** Secondary business support functions that are not critical and do not impose unique security requirements or legal constraints.

Annual Alignment with Cloud-computing Opportunities

Each year, the MiCloud function review process aligns ICT functions with business needs in light of new cloud-computing opportunities and offerings. Key elements of the process include:

- **Commodity alignment with business needs:** Complexity imposes risk on the business. As increasingly simple commodity options emerge, they are reviewed for fit-to-business needs.
- **Cost alignment with current business value:** As part of the review process, Michigan targets functions with cumbersome ordering processes and long fulfillment times for cloud transformation opportunities.
- **Delivery-method alignment with current options and needs:** Since clients value more granular delivery options, Michigan reviews opportunities to break up complex tiers into simpler options that may be managed and delivered by separate means.

Once options and costs are aligned with business needs and value, the MiCloud delivery-method decision tree is used to determine if a cloud option should be pursued and, if so, the appropriate sourcing method to use. As depicted in Figure 1, sourcing methods include an internal government cloud (on-premises), external government cloud (off-premises, cross-boundary partners), external commercial cloud (off-premises vendors) and hybrid cloud (any combination) along with traditional noncloud sourcing options.

Vision to Action

From top to bottom, Michigan is re-examining technology infrastructure delivery with a focus on delivering best value for clients. Key areas of current action and 2010-2014 strategic plan goals follow:

- **Virtual Data Storage:** Michigan has made strategic investments in storage virtualization technologies and is actively piloting MiCloud storage for users and storage for servers as internal government cloud functions. These functions are delivered by DTMB and have a planned production date of October 2010. The consumption expectation is more than 250 terabytes in the first year of operation.

The projected cost for MiCloud storage is 90 percent lower than today's lowest-cost storage tier. At the same time, MiCloud provides self-service and automated delivery within 10 minutes of submitting an online request. MiCloud storage may be used like any other network storage. Features include approval workflow, an online wizard that creates audit records as users manage permissions, an off-site copy option for business continuity purposes, usage-metered billing and storage pools in separate data centers.

- **Virtual Server Hosting:** The State of Michigan has made critical strategic investments in server virtualization technologies. To make the most of these investments, the state is in the proof-of-concept phase for the MiCloud hosting-for-development function in the internal government cloud. The function will be delivered by DTMB with a planned production date of April 2011. Michigan expects to deliver more than 80 servers in the first year. The function automates the delivery of virtual servers within 30 minutes of submitting an online request. Michigan also will explore a hybrid cloud to deliver a more complex application platform as a service.
- **Process Automation:** The state is in the proof-of-concept phase for the MiCloud process orchestrator function in the internal government cloud. This function enables business users, regardless of ICT skill level, to create and test simple process definitions. The function will be delivered by DTMB and has a planned production date of April 2011. Michigan expects to automate hundreds of processes in the first year of operation. Business users will be able to publish processes and related forms to the service catalog and, over time, analyze related metrics. The process definitions and metrics serve as the foundation for process transformation. The business analysts determine whether this basic level of automation is sufficient or if a more sophisticated automation effort is warranted. The next phase of development will enhance the integration capabilities of the function.

The cloud-computing paradigm is a startling shift in the thought process behind ICT sourcing methods. In Michigan, this shift is being used to free up scarce capital, staff resources and ICT assets such as development servers for critical investments. As described above, MiCloud follows a defined adoption path – prove the option will close gaps in tiered offerings, secure the delivery mechanism, enable Web-based service catalog access, transform the delivery in production and extend success to cross-boundary partners. In this way, Michigan is navigating the cloud-computing roadmap to secure tangible benefits for citizens and businesses.

Background

Today, the State of Michigan is actively creating business value by implementing cloud-computing functions. Like most sectors, government once saw itself as a unique business domain demanding unique ICT functions and custom solutions. Now, government business processes are converging with those of industry. These processes, such as staff recruiting and the ICT functions that support them, are becoming standardized commodities.

As with any commodity (wheat, for example), competition to deliver commodity ICT functions is based on cost. Small providers cannot compete on cost against large providers with massive economies of scale. (Just as small wheat producers are swallowed by large commercial farming operations.) Cloud computing involves a set of principles and practices that are optimized to deliver low-cost commodity ICT functions to multiple client organizations on a very large scale.

MiCloud

Michigan must review commodity ICT functions such as messaging for possible delivery by commercial cloud-function providers. These providers often operate on a global scale and deliver extremely low-cost functions. In contrast, Michigan internal staff members have competitive advantage when delivering specialized government ICT functions, such as regulatory compliance monitoring systems. For delivering these functions, best value is derived by precise alignment between the ICT functions and the unique government business processes in Michigan.

Yet most ICT functions do not conform to this simplistic view. For instance, specialized government ICT functions can be created by combining and configuring standardized commodity ICT functions in unique ways. Some commodity ICT functions are critical to government operations. These functions are not suitable to transfer to an external cloud provider. Michigan would represent only a small fraction of the client base, and the external cloud provider may not see Michigan as a priority. Some functions have unique security requirements or legal constraints. The cost and complexity of making a commodity ICT function provider compliant would negate the benefits of using the commodity ICT function.

In recognition of the opportunities and challenges presented by the advent of cloud computing, Michigan has made a strategic investment in the MiCloud (pronounced “my cloud”) program.

MiCloud Program

The MiCloud program provides governance and direction for cloud-computing efforts in Michigan. Delivered cloud functions are branded MiCloud functions. The MiCloud program captures the benefits of cloud computing for client agencies. Michigan has already made critical strategic investments in enabling technologies. We now apply cloud-computing practices to extract the maximum value from those prior investments. We accomplish function transformation, optimization and automation without major additional capital outlay.

For commodity ICT functions that are critical to government operations, MiCloud delivers optimized internal government cloud functions. Although these internal government cloud functions do not have the global scale of commercial cloud functions, they do deliver competitive value.

Internal MiCloud functions are not exposed to the Internet. This means business processes using internal MiCloud functions are not exposed to many of the threats they would face using a commercial cloud function. A reduced-threat profile enables us to deliver a simpler, less-costly function. Internal MiCloud functions are presented over the Michigan intranet, so they feature significantly faster data throughput than an Internet-based commercial cloud function.

MiCloud functions transform the way government services are delivered. They will serve cross-boundary entities such as local governments, universities and medical facilities. There is no technical barrier to serving commercial businesses as well; however, this is not currently a targeted outcome. For now, all MiCloud functions are limited to serving Michigan government agencies.

MiCloud Vision to Action

Michigan's strategy is to truly transform how we deliver ICT functions by leveraging cloud-computing practices and providing clients with:

- rapid service request fulfillment.
- secure functions.
- satisfying user experience.
- much lower costs.

We manage primary and secondary business support functions using a strategic, tiered approach.

Business criticality, security requirements and legal constraints drive sourcing decisions. Primary business support functions are critical to government operations or they impose unique security requirements or unique legal constraints. Secondary business support functions are not critical to government operations, and they do not impose unique security requirements or unique legal constraints.

Sourcing is the process of identifying the delivery method for a defined function. Sourcing methods include:

- Internal government cloud (delivered by on-premises Michigan internal provider)
- External government cloud (delivered by one or more off-premises cross-boundary government partners)
- External commercial cloud (delivered by one or more off-premises vendor partners)
- Hybrid cloud (any combination of the above)
- Internal hosting (traditional ICT function delivery by Michigan for Michigan)
- External hosting (traditional ICT function delivery by one or more vendors or cross-boundary partners for Michigan)
- Multihosting (any combination of internal and external hosting)

Cloud computing is not a panacea. MiCloud is one element of Michigan's overall function sourcing strategy. A cloud-computing approach may be suitable for only one function option in a multitiered function. It will not be suitable for some functions. Within a tiered function, there may be some cloud options and some noncloud options. Over time, a dynamic business process will need a mechanism to migrate from a commodity cloud option to a custom noncloud option and vice versa as requirements change. Our initial cloud functions satisfy client demands for commodity options within our broader, tiered function offerings.

External and commercial clouds are not viable options for every function. Michigan will continue to house primary functions securely in its internal government cloud. Examples include health, tax and criminal justice records. Secondary functions are possible targets for external or commercial clouds. The scope and variety of potential secondary functions are vast. Secondary functions provide exciting opportunities to transform the delivery of noncritical functions. Examples include human resources information, e-mail and messaging.

Why is Michigan adopting cloud-computing delivery models for internal functions?

Changing approaches to client business: At one time, government was a unique business domain. Each agency required a portfolio of unique processes and custom-enabling functions. Today, there is an increasing recognition among clients that standard business processes and commodity functions are readily adaptable to the business of government. Our cloud-computing model is optimized to deliver standardized function options to many distinct Michigan clients.

Changing staff needs and expectations: To deliver quality functions, we must attract and retain top talent. The emerging workforce demands challenging, varied and rewarding work. Staff members derive satisfaction from their ability to focus on complex tasks that create quality outcomes for the business. Implementing a cloud-computing function challenges and develops our staff. We have demonstrated that a successful cloud function automates routine tasks, freeing staff to pursue varied, high-value opportunities.

Imperative to maximize efficiency: Government is under fierce pressure to reduce staff, capital and operating budgets. At the same time, constituent demands for new service options and online services is steadily increasing. Michigan has demonstrated that the cloud-computing approach delivers new self-service options at a much lower cost. Michigan achieves industry competitive results with minimal up-front investments.

Positive impacts on noncloud functions: An overlooked benefit of pursuing a cloud-computing approach is the effect it will have on our noncloud functions. Fundamental to the cloud-computing approach is the ability to free capital, staff resources and ICT assets for investments elsewhere.

For example, if we deliver development servers using an automated cloud function, we free our server support staff to focus and optimize their noncloud function for test and production servers. We reduce cycle times for standing up test and production servers, because development server requests are removed from the work queue. Our capital is not tied up in physical development infrastructure; virtual development servers are de-allocated when not in use. This also saves

MiCloud

power, HVAC, UPS capacity, rack space, floor space, switch ports, SAN ports, monitoring capacity, O/S licenses, application licenses and database licenses, among others.

The unsustainable spiral of complexity: No organization has enough resources to analyze, engineer, secure and integrate custom solutions for every business-enabling function indefinitely. Each custom function introduced into the ICT environment increases the level of complexity—and risk—for all other functions. The potential for unintended interactions increases exponentially. Automated cloud functions must deliver standardized, commodity options wherever practical as a matter of long-term sustainability.

Investment risk management: When establishing a new ICT function, a major up-front investment is often needed to achieve the economies of scale necessary to make it cost effective. Assumptions are made about expected demand. The business case frequently projects recouping the initial investment over a period of years. What if the demand doesn't materialize? Much more cost must be spread over far fewer adopters. The function would never deliver the projected value.

By initially leveraging a cloud function, especially for the proof-of-concept and pilot phases, we can mitigate this risk. If the function is adopted at the predicted rate, we can make the capital investment with confidence. If not, we may choose to eliminate the function without swallowing major sunk costs.

The challenge of rogue cloud sourcing: Cloud services are extremely easy to adopt and use. A sophisticated user can stand up a fully automated business process without the ICT organization being involved or perhaps even being aware. Cloud services are often so inexpensive that, if purchased, they would not trigger a procurement review. Some are so inexpensive that staff may actually pay out-of-pocket just for the personal convenience.

Cloud services are automated and extremely elastic, but the resources to provide oversight, governance and security are not. Reducing the manual steps necessary to acquire services means fewer eyes on service use. Automation saves money, but it also creates the potential for misuse or abuse to go undetected longer. Services that formerly consumed internal network bandwidth only now add load to perimeter security assets and ISP connection costs.

In response, Michigan provides a limited number of feature-for-cost competitive government cloud functions as secure alternatives to the vast and growing numbers of commercial cloud services. Then we are able to block similar cloud services to prevent rogue cloud-sourcing. We are able to provide effective governance over this limited subset of cloud-computing options.

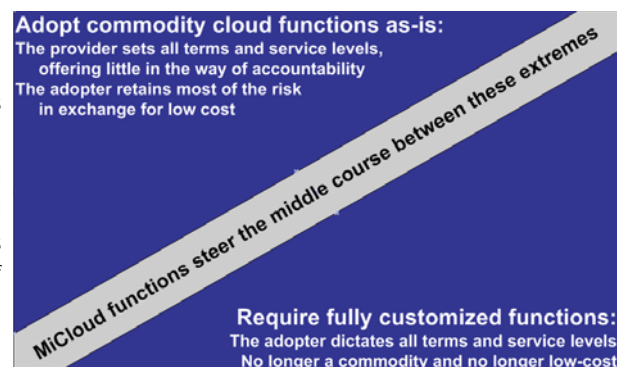
MiCloud Functions

Adopting a commercial commodity cloud function as is, is an act of trust. The cloud function provider sets the standards, terms, conditions and service levels. Such providers naturally offer little in the way of accountability for themselves. The adopter retains most of the risk in exchange for extremely low cost. The opposite extreme would be for the adopter to dictate all standards, terms, conditions and service levels. This is possible, but the resulting function is fully customized for the adopter. It is no longer a commodity, and it is no longer low cost.

MiCloud functions steer the middle course between these extremes. We seek the right balance by setting some basic parameters for evaluating external cloud-computing opportunities:

- Business criticality
- Unique security requirements
- Unique legal constraints, such as privacy laws

In cases where an external cloud function is not appropriate, MiCloud internal government cloud functions close the gap. This gives us the best of both worlds in terms of reduced costs, accountability and agility.



MiCloud functions follow a defined adoption path:

1. Prove	Demonstrate successful function options that close gaps in our offerings as proof of concept and then as a pilot. Explore policy changes, template contracts, service level agreements, terms and conditions.
2. Secure	Evaluate results to ensure the MiCloud function is fit for the business purpose and secure. Release updated policies. Provide tools and training. Block external providers lacking required controls.
3. Enable	Publish a self-service catalog. Educate clients about cloud and noncloud options and the benefits of each.
4. Transform	Deliver tiered functions with options ranging from commodity, self-service through dedicated, fully customized.
5. Extend	Once a MiCloud function is successfully launched, explores cross-boundary opportunities: <ul style="list-style-type: none">- Share policy examples, requirements and RFP templates- Enable other units of governments to purchase using our contracts (MiDeal)- Provide a solution pattern and reference model (the blue prints/details of our successful function)- Deliver functions directly to other units of governments (future)

MiCloud

How does Michigan identify cloud-computing opportunities that make sense?

Fundamentally, cloud computing is an integrated part of Michigan's function delivery strategy. The MiCloud Function Review Process, shown to the right, guides an annual review of each ICT function category for proper business alignment in light of new cloud-computing opportunities.

Function option alignment with current business needs: Increasingly, extremely simple commodity options will satisfy many consumers. Extremely complex custom options often exceed the true needs of most consumers. Complexity imposes risk on the business.

Function option cost alignment with current business value: As part of the review process, Michigan identifies function options with costs that exceed the business value delivered for many consumers. We recognize that these function options are not viable, even if the function meets client requirements. Michigan works to target functions with cumbersome ordering processes and long fulfillment times for cloud transformation as well.

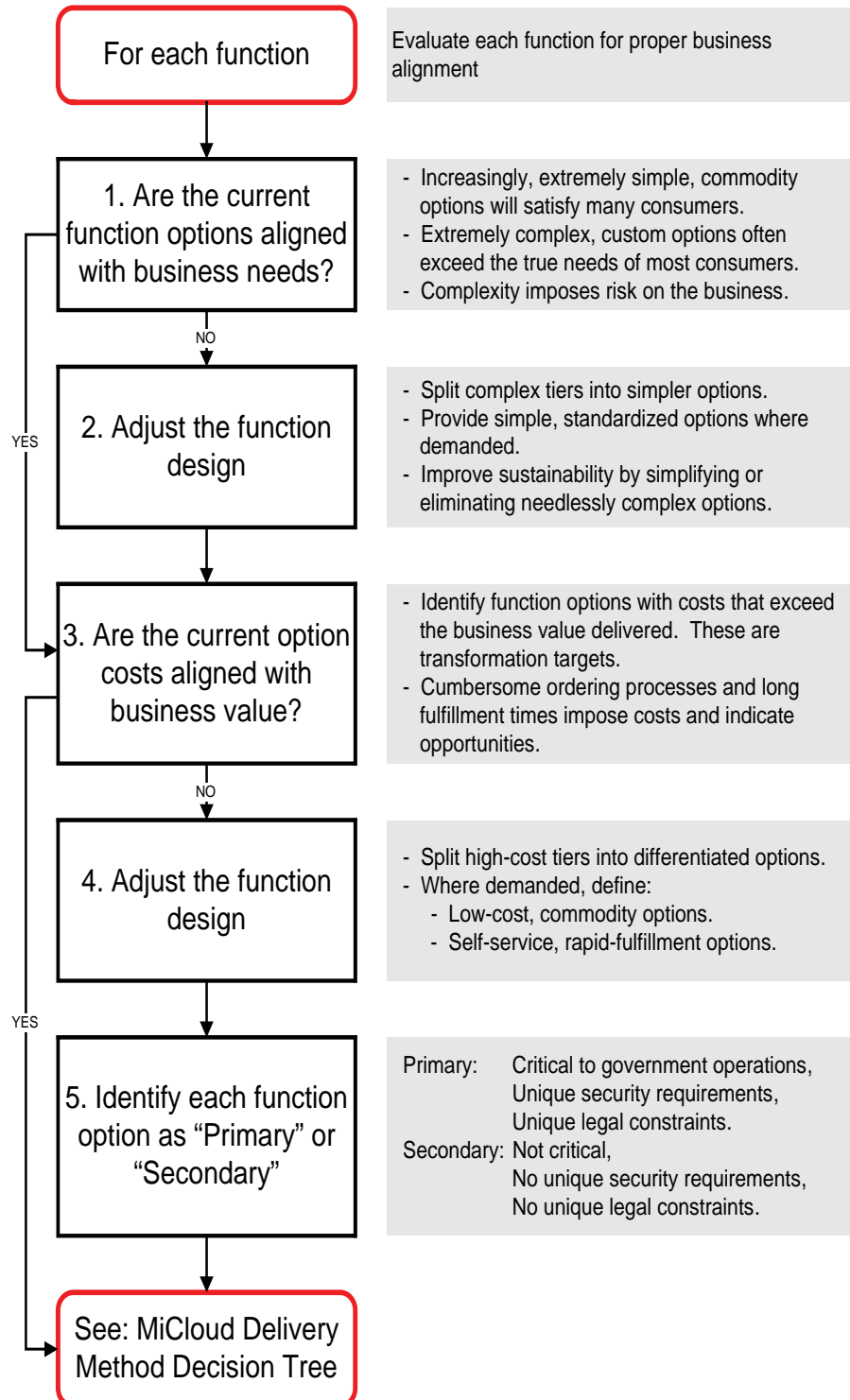
Transforming our function delivery methods: Michigan breaks up complex function tiers into simpler function options that may each be managed and delivered by separate means. We work to improve consumer satisfaction by providing new function options that are:

- low cost
- usage metered
- standardized
- commodity
- self-service
- rapid fulfillment

Michigan recognizes the need to improve its overall function sustainability by simplifying or eliminating needlessly complex function options. Unlike traditional ICT solutions, cloud functions must get simpler and more standardized over time.

A Michigan agency can require special, noncommodity functionality in an ICT function option. Michigan has a custom function development offering to accommodate that. The result would be a new, custom, noncloud function option. The resulting one-off complexity is not incorporated into the cloud function. The resulting premium one-off cost is born by the requesting client, not spread across all commodity cloud function clients.

MiCloud Function Review Process



MiCloud

How does Michigan decide where to pursue cloud sourcing?

Once the function options and costs are aligned with business need and value, the MiCloud Delivery Method Decision Tree is used to determine if a cloud option should be pursued, and if so, the type of cloud function.

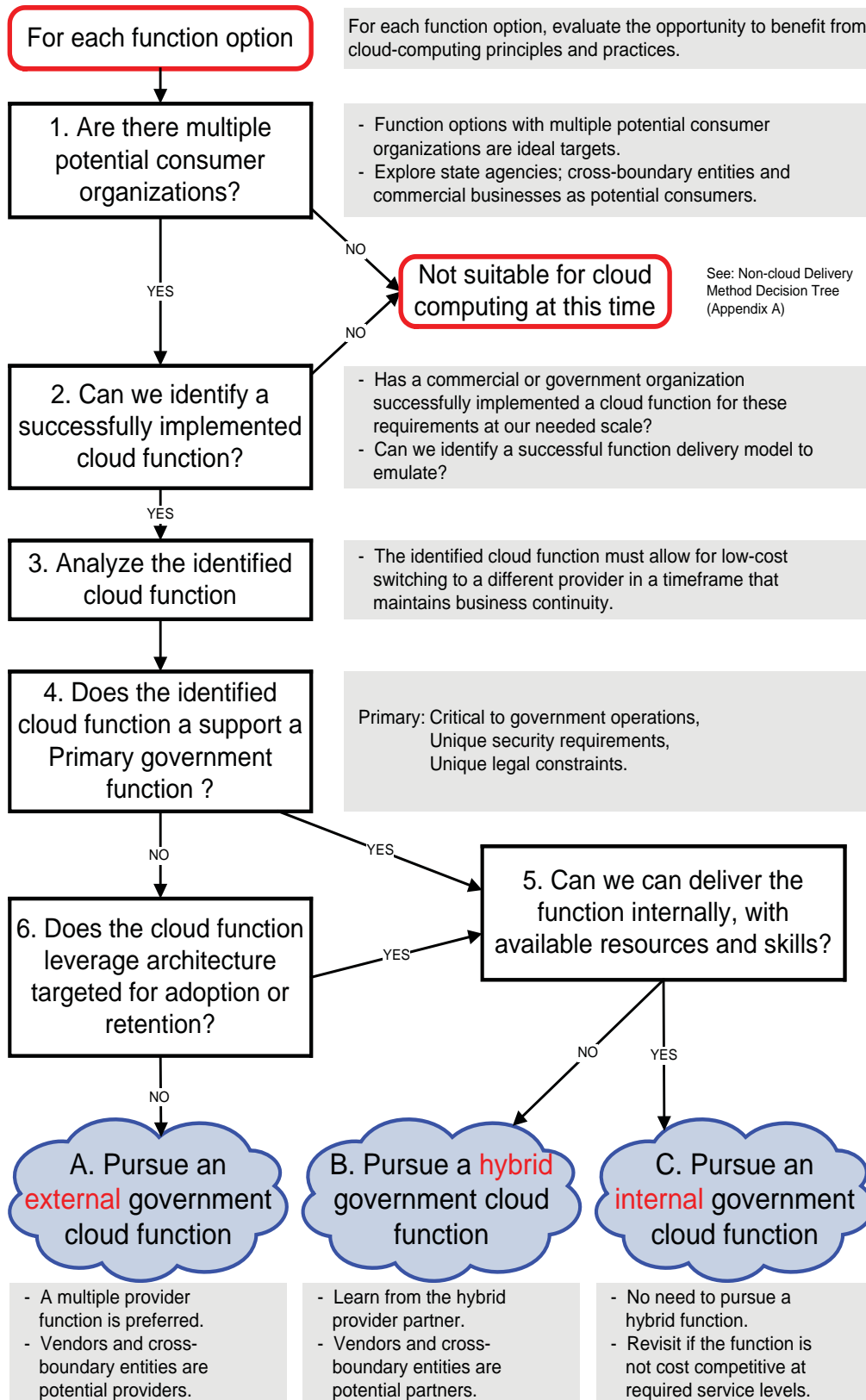
Whenever practical, DTMB pilots internal government cloud-computing functions first. The label internal government cloud-computing function makes it clear the function is hosted and provided by Michigan government itself. This is in contrast to an external government cloud-computing function, which would be provided by a cross-boundary government partner. An external commercial cloud-computing function would be provided by a commercial vendor. When an ICT function is delivered by a combination of these, it is called a hybrid cloud-computing function.

Exploring opportunities to transform existing ICT functions into internal government cloud-computing functions allows State of Michigan staff to evaluate the maturity and interoperability of various cloud technologies and practices. Piloting internal government cloud-computing functions allows State of Michigan staff to gain competence before engaging with a commercial vendor. Thus, our agency business clients realize immediate benefits at low risk.

The MiCloud program identifies reference functions. These are successfully implemented commodity ICT functions that meet equivalent requirements at the scale of current Michigan ICT functions. MiCloud challenges Michigan's current function providers to match the value-for-cost performance of these reference functions. Where successful, there is no need to incur the risk and complexity of engaging with commercial cloud providers.

For example, the MiCloud Storage for Servers function is an internal government cloud function delivered by DTMB. The function is cost and feature competitive with commercial cloud storage providers such as Amazon S3. The low-cost cloud option is integrated with noncloud options in a comprehensive, tiered storage offering. The MiCloud Storage for Servers function performs at Intranet speeds, much faster than any Internet-based commercial function. The function does not rely on an Internet-based provider. Government data does not leave our secure intranet. Because the benefits of an external cloud function have been achieved, even exceeded, there is no business imperative to engage a commercial cloud provider.

MiCloud Delivery Method Decision Tree



In which areas is MiCloud delivering internal government cloud functions now?

Summary Table:

Offering	Type	Production Date
MiCloud Storage for Users	Virtual Data Storage-IaaS	October 2010
MiCloud Storage for Servers	Virtual Data Storage-IaaS	October 2010
MiCloud Process Orchestrator	Process Automation	October 2010
MiCloud Hosting for Development	Virtual Server Hostinf-IaaS to APaaS	April 2010

Virtual Data Storage: Michigan is actively piloting MiCloud Storage for Users and MiCloud Storage for Servers as internal government cloud functions. These functions are delivered by the Michigan DTMB. Production for these functions is planned for October 2010. We expect to consume more than 250TB in the first year of operation. This is an example of the Infrastructure as a Service (IaaS) model.

In recent years, Michigan has made critical strategic investments in storage virtualization technologies. We now use cloud-computing practices to extract the maximum value from those prior investments. This low-cost option represents a service alternative that is only appropriate for data that do not require 24x7 availability or real-time block-level replication.

MiCloud Storage for Users: The cost for this function is 83 percent lower than our lowest-cost storage tier today. At the same time, the function delivers self-service and automated provisioning within 10 minutes of submitting an online request. The provisioned storage may be used like any other network file share. Features include:

- Network Attached Storage (NAS) network file shares
- Slightly reduced performance from current lowest-tier function
- Reduced service levels from current lowest-tier function
- Fully automated provisioning
- Limited access to authorized agency users
- An online wizard that manages permissions and creates audit records
- No backups but an off-site copy that may be requested for continuity
- Metered usage with charges computed as the daily GB rate x the maximum GB usage for that day

The key benefits are self-service and low cost

Normally, the provisioning service and storage pools are available 24x7. If an incident were to occur, however, the storage team would not respond until the next business day between 8:00 a.m. and 5:00 p.m. In that sense, the storage is supported Monday through Friday during standard business hours.

The MiCloud storage pools are not backed up. Data may be replicated to a second data center for continuity, but this doubles the cost to the agency.

A Case in Point – MiCloud Storage for Users:

Chuck is forming an ad-hoc cross-functional team to plan for major budget reductions. Step 1 is definitely not, "Spend a bunch of money." Chuck's agency participates in the low-cost MiCloud Storage for Users function.

Chuck requests a virtual storage area from the online service catalog. The network file shares are provisioned within 10 minutes by an automated process. Chuck immediately provides access to his cross-functional team members, using the online access wizard. Chuck's team begins to collect the necessary data and formulate plans. The MiCloud Storage for Users file shares allow for simple collaboration. Chuck knows he can request a SharePoint team room, but he feels the cost is not justified for this purpose.

Membership in Chuck's team is very dynamic. Over time, multiple members transition on and off the team. Chuck can change access permissions immediately, so new team members can quickly gain access and come up to speed. Chuck also designates several read-only members to review his team's progress. All access changes are logged and preserved for audit purposes.

Once the final package is delivered, Chuck de-allocates the bulk of the storage. He is paying for the amount of storage he actually consumes. His agency needs every dollar to make the plan a success.

MiCloud Storage for Servers: The cost for this function is 83 percent lower than our lowest-cost storage tier today. At the same time, the function delivers self-service and automated provisioning within 10 minutes of submitting an online request. The provisioned storage may be used like any other network file share.

- These are Network Attached Storage network file shares.
- Their performance is slightly reduced from our current lowest-tier function.
- Service levels are reduced from our current lowest-tier function.
- Provisioning is fully automated.
- Access is limited to authorized DTMB users.
- Requestors manage permissions with an online wizard that creates audit records.
- Usage is metered. Charges are computed as the daily GB rate x the maximum GB usage for that day.
- There are no back-ups or automatic replication across data centers.
- The key benefits are self-service and low cost.

Normally, the provisioning service and storage pools are available 24x7. If an incident were to occur, however, the storage team would not respond until the next business day between 8:00 a.m. and 5:00 p.m. In that sense, the storage is supported weekdays from 8-5.

The MiCloud storage pools are not backed up. To achieve redundant copies in physically distinct data centers, requestors create two storage pools, which are guaranteed to be in separate data centers, and write to both locations. This doubles the cost to the agency.

A Case in Point – MiCloud Storage for Servers:

Sandra is awakened in the middle of the night by an urgent text message. A critical Michigan application has experienced a server failure. The server's cluster partner is still operational, but performance is degraded.

Sandra knows how to fix this issue, but the procedure is complex and risky. She has used temporary virtual storage from the MiCloud Storage for Servers function successfully in the past. Sandra requests a virtual storage pool from the online service catalog. The storage is provisioned within 10 minutes by an automated process. Now Sandra is able to make copies of critical data and system files before she starts her recovery procedure. If she wishes, she can direct the data to two physically distinct data centers.

Fortunately, the procedure succeeds on the first attempt, and the cluster is restored. Sandra closes the incident, but she does not de-allocate the MiCloud storage yet. She knows the MiCloud virtual storage pool has retained valuable clues that will identify the cause of the server failure. Sandra and her team can perform a root cause analysis in the morning, without having to disrupt the running business application.

Storing this data for only one day is so inexpensive that it is within Sandra's authority to make this decision, based on team guidelines established by her manager and their client. The MiCloud Storage for Servers function empowers Sandra to respond effectively and deliver quality outcomes for the business.

Virtual Server Hosting – IaaS to APaaS: Michigan is in the proof-of-concept phase for the MiCloud Hosting for Development function as an internal government cloud function. The function is delivered by the DTMB. The planned production date for this function is October

2011. We expect to deliver more than 80 development server instances in the first year of operation. Today, this is an example of the IaaS model. We will explore a hybrid cloud function approach to deliver the more complex Application Platform as a Service (APaaS) model.

In recent years, Michigan has made critical strategic investments in server virtualization technologies. We now apply cloud-computing practices to extract the maximum value from those prior investments.

A Case in Point – MiCloud Hosting for Development:

Dan is wearing two hats. He owns management responsibility for the operation of a high-visibility public-facing State of Michigan business process. The successful operation of this process relies on Generation 3 of the enabling software. Generation 3 is currently running in the production environment. Dan is also the executive sponsor for the high-profile multimillion-dollar project to transform the business process through innovation, including a highly customized Generation 4 version of the software, currently under construction in the development and test/QA environments. Dan's project team is six months into a 12-month development effort. The project timeline is extremely aggressive.

The current situation:

Development	Test/QA	Production
Gen4	Gen4	Gen3

Late Friday night, Dan gets the fateful call. One key assumption about the Generation 3 solution currently in production was flawed. It is clear to Dan's analysts that production will fail in three weeks unless several software remediations can be made quickly. Dan knows from experience that flushing all the project changes from the development and test/QA environments so the production support team can make the necessary application changes will cause much more than a three-week project delay. Dan can hear the project dependency train wreck in the distance.

The train-wreck scenario – The Generation 4 project team is flushed from Development and Test/QA:

Development	Test/QA	Production
Gen3	Gen3	Gen3

Dan's production support team proposes using the MiCloud Hosting for Development function to immediately allocate a second set of development servers. They will only need to pay for three weeks of access. Once the remediations are ready for testing, they will coordinate with the project team, promote the Generation 3 development changes to test/QA, do their validation, then let the project team promote their Generation 4 version back to test/QA. The production support team will then store the server images in case they are needed again and de-allocate the new servers. Dan clearly sees the advantages and approves the minor expenditure.

Development	Test/QA	Production
Gen4	Gen4	Gen3
Development 2		
Gen3		

The Generation 4 project team continues while the production support team works in the Development 2 environment. When ready, the production support team coordinates with the Generation 4 project team and promotes Development 2 to Test/QA to allow the client to validate the production fixes. The Generation 4 project team continues to work in the Development environment:

Development	Test/QA	Production
Gen4	Gen3 (fixed)	Gen3
Development 2		
Gen3 (fixed)		

Once validation is successful, the production support team promotes Test/QA to Production:

Development	Test/QA	Production
Gen4	Gen3 (fixed)	Gen3 (fixed)
Development 2		
Gen3 (fixed)		

The Generation 4 project team then promotes the Development environment to Test/QA and Development 2 is de-allocated. This restores the original state:

Development	Test/QA	Production
Gen4	Gen4	Gen3 (fixed)
Development 2		
Gen3 (fixed)		

Driving home, Dan thinks about his budget. He has funds allocated to host his development environment multiple years past the end of his Generation 4 project. Can't Dan's team do the same thing at the end of the Generation 4 development project – archive the server images and release the resources? Dan realizes the savings would far exceed the cost of the temporary development environment he just approved. Dan now understands his physical development servers represent a capital asset that could be reinvested elsewhere. The funds that would have paid to host his development environment for a rainy day can now fund further innovation efforts. The MiCloud Hosting for Development function makes this possible.

Process Automation – SaaS: Michigan is in the proof-of-concept phase for the MiCloud Process Orchestrator function as an internal government cloud function. The function is delivered by the Michigan DTMB. The planned production date for this function is April 2011. We expect to automate hundreds of processes in the first year of operation. This is an example of the SaaS model.

In recent years, Michigan has made critical strategic investments in process improvement initiatives. We now apply cloud-computing automation and metrics capabilities to extract the maximum value from those prior investments. Process automation is universally recognized as a necessary organizational competence to enable organizational transformation.

The MiCloud Process Orchestrator function enables agency business users to create simple models of as-is and to-be processes. Without ICT skills, business users build and test process models through simulation, then implement the basic business processes. Within the MiCloud Process Orchestrator function, agency business users publish processes and related forms to the service catalog.

After operating within the MiCloud Process Orchestrator environment for a time, agency business users analyze metrics. The process models and metrics serve as the foundation for process transformation. The business analysts determine if the process is operating as intended and pursue continuous improvement. They determine if this basic level of automation is sufficient or if a more sophisticated business process automation effort is warranted.

The Process Orchestrator lifecycle:

- Describe
- Simulate
- Pilot
- Operate
- Measure
- Optimize

As with other successful SaaS functions, the MiCloud Process Orchestrator function is most suited to automating business processes requiring little integration to other ICT systems. The next phase of development will enhance the integration capabilities of the function.

A Case in Point – MiCloud Process Orchestrator

Tina has heard all the complaints. Anecdotal horror stories about her team' paper-based processes abound. Tina is a change agent and is ready to begin transforming the operations of her team. To accomplish the transformation, Tina knows she needs metrics. Will her proposed transformations improve service? Without objective measures, she will still be battling the anecdotal perceptions of the past.

Tina recognizes that her clients do not understand her manual processes, which are extremely difficult to measure. Some basic level of Web-based ordering and process automation would allow Tina to begin to generate statistically significant numbers of measures. This would also provide some convenience and transparency to her clients. But how can she justify an investment in tools and development to automate a process that she knows needs to be over-hauled?

At a departmental leadership conference, Tina learns about the MiCloud Process Orchestrator function. She is excited to learn that the function was designed for self-service use by non-ICT staff. Tina accesses the function and enters details about the process that will be her first transformation target. She gets representative stakeholders into a computer training classroom, and together they use the MiCloud Process Orchestrator function to simulate the operation of the process. All agree that the simulation automates the existing process accurately. Both her clients and her own team members appreciate the ability to track and display the status of any request throughout its lifecycle.

Her clients are so impressed they ask Tina to publish the simulation to the service catalog in order to automate the production service. Tina points out that, although simulation is free, there is a charge for automating production. The client agrees to pay a few cents for each production transaction for six months. They are just as eager as Tina to see objective metrics.

Because there is no major up-front investment, Tina's clients can support funding the cost for as-is process automation. Client managers are able to evaluate the value delivered first-hand, before agreeing to pay ongoing charges. Tina designs, models and simulates her to-be process while the as-is continues to operate. The MiCloud Process Orchestrator function makes this possible.

What does Michigan see as barriers to implementing a true SaaS model?

SaaS is inherently problematic. Placing the focus on software is misguided. The focus should be on enabling business processes. Do we imagine that clients will purchase document management or customer relationship management SaaS offerings from alternatives presented in a service catalog? How many business processes spider out from a typical document management or customer relationship management service? How many legacy integrations? How will the client alone analyze the impacts of such a decision?

Software services are not interchangeable. Figuring the cost difference of selecting one SaaS offering over another requires an intimate knowledge of both SaaS offerings and the many other systems that may need to interface to the SaaS offering. An offered option may be far more costly, or actually precluded, based on the necessary integrations.

Our clients will not thank us for presenting options in the service catalog, only to discover later they can't really leverage them. To be successful, the SaaS service to be purchased from the service catalog must be a business process enablement consulting engagement, not software.

Despite claims to the contrary, Michigan views most touted SaaS implementations as application outsourcing. This is not to assert that application outsourcing is inherently good or bad. Michigan has many outsourced applications. It's just not cloud computing. A cloud function is a commodity. True commodities are interchangeable, regardless of the provider. (Wheat from Provider A is the same as wheat from Provider B.)

Achieving this interchangeability has been easier for IaaS providers. Strong standards for interchangeable components are part of the infrastructure culture. Competition in the infrastructure space has been based on commodity cost for many years.

To a lesser degree, this is also true for APaaS. Standard application platform models do allow for relatively painless switching between two providers delivering the same product stack. If Provider A delivers my Linux-Apache-MySQL-PHP (LAMP) application platform today, I can switch to Provider B's LAMP application platform fairly easily tomorrow.

Achieving this in the SaaS space is much more problematic. Unlike the infrastructure industry, the software industry has long followed a differentiation strategy. This is the opposite of a commodity strategy. Software vendors pride themselves on delivering standards-plus ICT functions. The sales pitch goes, "This software is not just standard! It's even better than standard!" This is nonsense, of course, and means the software is not standard at all.

An Application Services Provider (ASP) offering falls short of true cloud computing. Fundamental to the ASP model is sharing a single application implementation across multiple client organizations. This is the multitenant hosting model. With this model, client dependency problems arise quickly.

For example: Let's say that an ASP is hosting Arbitrary software, for clients X, Y and Z. Because of an internal project, Client X must upgrade to the next version of Arbitrary or the project will fail. Because of integrations with legacy functions, Client Y must not upgrade to the next version of Arbitrary or the business process will fail.

Someone is going to lose here:

If the ASP does not upgrade, Client X must incur cost to change providers.

If the ASP does upgrade, Client Y must incur cost to change providers or rewrite its legacy integrations.

If the ASP decides to host both versions of Arbitrary, efficiency is lost and additional costs must be passed on to clients. This is bad news for Client Z, who had no preference either way.

Replay this scenario in your head with 30 clients. How about 300 clients? You can see that, at some scale, this approach must break down.

How is Michigan overcoming the barriers to SaaS?

Services Oriented Architecture (SOA): DTMB has proposed implementing a SOA Enterprise Services Bus (ESB) environment to lower the cost of integrating and re-integrating changing SaaS offerings. Unfortunately, the first introduction of SaaS into a business process area will be the most costly for highly integrated environments. In conjunction with the initial SaaS implementation, many of the custom integrations to the service must be altered. Where practical, Michigan directs such re-integration efforts to leverage the ESB. After the initial investment in ESB integrations, any of the internal or external software services supporting the business process can be swapped out at significantly reduced re-integration costs in the future.

Encapsulation: IaaS and APaaS overcome the client dependency problem through encapsulation. The service provider delivers an abstraction layer that allows each client to function within his or her own virtual bubble. Each client may then control their own upgrade schedule, at least to some degree.

A software function provider can follow this strategy. Each client could be allocated separate virtual machines (VMs) for software presentation, application and database. That will work fine, but it is an application platform. This is an example of APaaS, not SaaS.

Encapsulation is the approach Michigan follows for many internal applications today. The need to reduce the cost of software licenses, support and infrastructure drove the creation of large, multitenant software hosting implementations. Negotiating virtual machine-friendly licensing rates is critical to deliver encapsulated software platform functions successfully. Delivering encapsulated software platform functions is, in turn, critical to eliminating client dependencies and reducing business complexity.

Reserve the right to re-source: Michigan is pursuing changes within ASP contracts. We must stipulate certain preparations and reserve certain rights to enable a future function re-sourcing. Along with application data, all software configuration data must be secured either at the State of Michigan or with a third party, such as a DR provider. The annual DR exercise then becomes a rehearsal for a potential future re-sourcing. What if our ASP is purchased by a foreign entity? What if security requirements or legal constraints change and an in-sourcing is required? The ability to exchange one provider for another while minimizing cost and impact to the business is critical.

How does cloud computing fit into Michigan's data center strategy?

Although our data center strategy does not revolve around bricks and mortar, we must recognize that Michigan will need of a minimum of two physical geographically separated data centers. That is not to say that these data centers must be dedicated for State of Michigan use exclusively.

Cloud computing is an integral element of our data center strategy. Cloud computing models have a major impact on how we manage ICT function delivery. Cloud computing provides new function sourcing options beyond the four walls of the traditional data center.

For ICT functions that support the critical, primary functions of government, Michigan demands a high level of delivery control. Unique security requirements and legal constraints also result in demands for a high level of control. To satisfy these demands, the State of Michigan will need to secure a high level of control in at least two physically distinct data centers to deliver critical government support functions.

This has important implications as we pursue public-private partnerships for creating the Great Lakes Information and Technology Center. Potential cross-boundary partners and commercial partners must understand and formally agree to the Michigan need for control over ICT functions that enable critical government operations. Further, Michigan contributions and responsibilities must be confined to governmental activities. Failure to do so could leave the State of Michigan open to claims of improper commercial competition or lead potential litigants to attempt to pierce Michigan's governmental immunity protection.

By identifying the secondary government functions that do not require this high level of control, we define the domain of ICT functions that can be more flexibly sourced to capture the cost savings and other benefits of exciting alternatives such as external cloud-computing services.

How does Michigan's cloud-computing approach compare to the U.S. federal strategy?

Federal broker strategy - Apps.gov: The U.S. General Services Agency (GSA) has created Apps.gov as a marketplace. Apps.gov allows government agencies to purchase cloud-computing functions from approved vendors. Federal agencies benefit from assurances that the vendor's terms and conditions have been vetted by GSA and that a contract and rate schedule have been negotiated in advance. This is a broker strategy for cloud computing.

GSA's value add: The broker strategy puts much of the onus for function adoption on the agency. Any re-sourcing must be initiated and managed by the agency as well. The Apps.gov cloud offerings are not presented as options within a broader tiered-function offering. Mitigating the business impact of switching providers appears to be the responsibility of the agency, rather than the GSA.

Michigan's provider strategy: In contrast, Michigan follows a provider strategy. DTMB owns the responsibility for delivering business enabling functions. Like the federal strategy, if a contract with a commercial cloud provider is needed, DTMB negotiates it. But as a provider, DTMB adds value throughout the business process lifecycle.

Michigan's value add: DTMB's low-cost cloud function options are integrated with noncloud options in a comprehensive tiered-function offering. Our solutions are designed to enable cross-tier migration and provider switching. MiCloud functions are designed to mitigate re-sourcing impacts to the business and avoid vendor lock-in. We function as the one-stop shop for the broad spectrum of function options, from commodity cloud functions to fully customized dedicated solutions. It is DTMB's role to ensure portability and secure service migration options on behalf of the client.

Federal internal government cloud strategies: Several U.S. agencies are pursuing internal government clouds, in contrast to the Apps.gov approach. The federal internal government cloud approach is similar to Michigan's strategy.

What are the expected cloud-computing benefits for Michigan?

- Green ICT: minimize footprint, efficiency
- Remediate legal, policy compliance
- Optimize provisioning over time
- Transform function delivery capabilities
- Energize staff
- Enable government transparency, social computing
- Optimize function delivery
- Redeploy highly skilled staff to our highest-value tasks
- Provide automation support for routine provisioning
- Reduce complexity and cost of ICT functions
- Improve user satisfaction
- Offer standard functions catalog and self-service
- Facilitate cross-boundary opportunities, storefront
- Offer repeatable solution patterns
- Encourage public-private partnerships
- Drive economic development

Conclusion

Michigan is pursuing a culture change, not just within our ICT organization but throughout our agency clients, cross-boundary partners and commercial partners as well. For decades, ICT function providers have collected detailed requirements from clients and delivered high-cost customized ICT functions that failed to satisfy the client's true needs. The success of extremely simple, no-frills cloud-computing solutions should be no surprise. The truism, "It's only a requirement until the client sees the price tag," anticipates this evolution.

The cloud-computing paradigm says, "The client can have something simple, proven and cheap immediately, or they can have something complex, unproven and expensive in six months." This is a startling shift in the way we think about ICT functions.

If the client is educated about the simple, proven and cheap options and still demands a custom solution, he or she must truly have unique needs. With many needless requests for custom solutions removed from the work stream, DTMB can focus on delivering high-value results for the remaining few. DTMB has developed the skills and competencies to assemble unique solutions by combining standard, interoperable cloud-computing functions.

Like so many overly hyped trends of the past, the best principles and practices of cloud-computing will be assimilated into the standard ICT business model. Over time, the rest will fall by the wayside. Michigan is working to capture the real benefits of cloud computing for our clients, while ignoring the hype. The old paradigm is already dead. In Michigan, cloud computing is delivering business value today.

Michigan's guidance for structured agreements with cloud vendors

There are no unique legal issues or constraints for cloud computing that are not present in other third-party hosting agreements. A template contract for both third-party hosting and cloud-sourcing contracts helps shape negotiations and ensure best practices are included from the outset. Key elements include:

Ownership

- Guarantee that Michigan will continue to own and control all access to Michigan business data, configuration data and business processes
- Guarantee that the provider will surrender and purge all Michigan data on demand
- Stipulate that the provider will replicate all Michigan data to a State of Michigan-designated data repository within a state-designated interval of time. This supports annual DR testing and serves as a hedge in case the vendor is seized or sold and refuses to cooperate with Michigan's efforts to re-source. In a sense, our annual DR exercise is a rapid re-sourcing rehearsal.

Security

- Compliance with Michigan identity and access management
- Auditable records of all data access events
- Certification by a third-party auditor that security controls are appropriate for the type of Michigan business process enabled. (We don't really want to review the technical details of their security architecture ourselves because we have access. We would not want another client organization that has access to review the security details and learn vulnerabilities that might allow them to breach our data. The third-party auditor must have read-only access while conducting the audit.)

Legal issues

- Guarantee that the provider complies with all applicable federal and state legal requirements for the type of Michigan business process enabled
- Stipulate that the provider is accountable for breach notification and mandated follow-up costs but that Michigan is responsible for any actual notifications
- Guarantee that all provider contracts, including telecom providers, are enforced under U.S. law. There is a strong preference for substituting Michigan law here. Michigan is much better equipped to contest legal issues in Michigan courts.
- Define protocols and procedures to be followed if the provider receives a Freedom of Information Act request, e-discovery request or court order related to Michigan data. Michigan owns the data; therefore, only Michigan can release it.

Location for hosting

- As prescribed by law for the type of Michigan business process enabled

SLAs

- Set required availability and performance metric thresholds with penalties
- Set incident response metrics: Support availability, initial response time and method, update time and method, MTTR with penalties

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Appendix L

Statewide Radio Communication

Vision of Action

The State of Michigan works diligently to provide all Michigan public safety agencies with access to an interoperable statewide public safety communication system. We strive to provide the ultimate in both interagency and intra-agency interoperability and facilitate cost-effective implementation and utilization of new communication technologies for member agencies.

The Michigan Public Safety Communication System (MPSCS) provides state-of-the-art communications using advanced technology based on nationally recognized standards contained in the Association of Police Communications Officers (APCO) Project 25 specifications. As a leader in standards-based public safety interoperability, it is essential that the MPSCS stays current with new and important lifesaving communication technologies. The ability to share information on demand and in real time, whether it is voice or data, is critical to the first responder.

The function of any public safety communication system is to assure rapid response and cooperation of emergency personnel. The MPSCS achieves this through statewide coverage and advanced technology, while remaining reliable and easy to use. System operation is monitored 24 hours a day to ensure its readiness to assist Michigan's first responders. The MPSCS is the primary communications interoperability solution for Michigan's public safety first responders.

Background

The MPSCS is a statewide radio communication system that:

- serves more than 1,203 federal, state and local public safety agencies.
- is comprised of 239 tower sites, more than 20 integrated state and local public safety dispatch centers and a network communications center serving more than 50,600 radios.
- provides 97 percent all-weather mobile coverage across Michigan.
- provides enhanced portable coverage within Genesee, Macomb, Monroe, Saginaw and St. Clair counties as well as the city of Detroit.

Starting in the mid-1990s, the state made a significant investment to provide statewide radio communication for first responders. While the MPSCS was originally implemented to serve the Michigan State Police, the Michigan Department of Natural Resources and Environment and the Michigan Department of Transportation also rely on the system. More importantly, more than 1,100 local public safety agencies have joined the MPSCS, accounting for 83 percent of the system's "push-to-talk" radios (PTTs).

Today 75 percent of the radios on the MPSCS belong to local public safety agencies. The MPSCS is robust enough to serve the needs of many more local, state and federal agencies. Local agencies find the MPSCS financially attractive. They benefit by leveraging the state's investment, which also provides the interoperable communications essential to today's first responders. In some cases, smaller agencies need only acquire radios to join the MPSCS, while larger agencies frequently add towers and devices to provide in-building portable coverage within their jurisdiction or to meet other special local needs.

MPSCS Goals

- Goal 1: Interoperability
Any MPSCS member can speak with another member with the touch of a button.
- Goal 2: Leading-Edge Technology
Technology is continuously evolving to better meet the needs of public safety agencies.
- Goal 3: Restricted Funding Source to Address System Operations and Upgrades
MPSCS enables agencies to pursue interoperability instead of struggling with ongoing funding issues.
- Goal 4: Rebanding the MPSCS to New 800 MHz Spectrum
This effort eliminates interference by separating the frequencies used by public safety and cellular systems.

Statewide Radio Communication

Goal 1: Interoperability

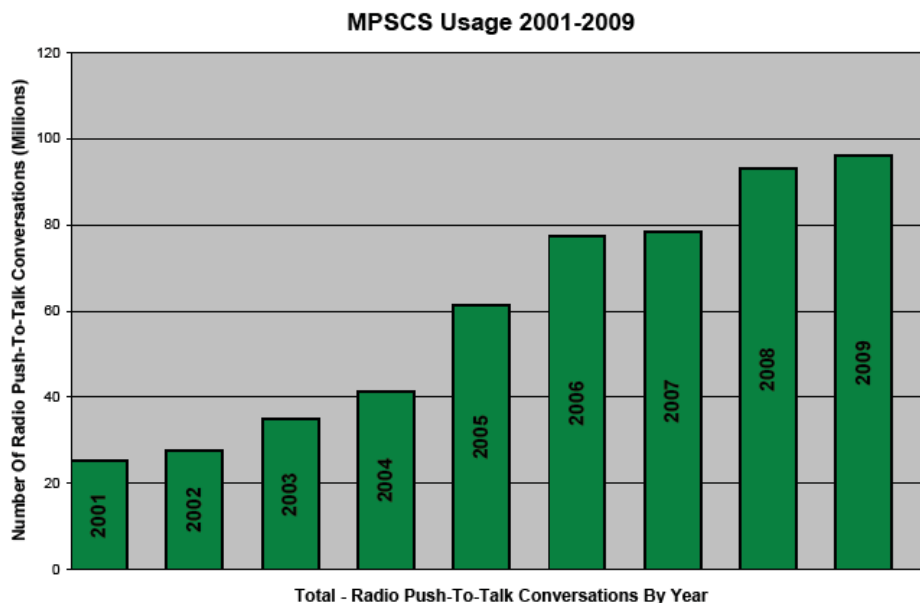
The MPSCS provides local, county and statewide interoperability without implementation of the cumbersome interconnections between radio systems known as patches. Because it is a standards-based shared system, any MPSCS member can speak with another member with the simple touch of a button, a feature that has already proven to be a lifesaving, safety-enhancing tool for Michigan citizens and public safety officials.

The system's ability to expand and adapt to unique requirements permits it to accommodate current and future interoperability needs of Michigan's public safety community. The system's flexibility allows agencies that wish to achieve a specific level of portable radio coverage to add sites or other coverage-enhancing facilities. The system's adaptability allows various approaches to enhanced coverage.

- A. Continue to provide the highest level of interoperability for all first responders in Michigan
- B. Facilitate the addition of several thousand new radios by agencies that received federal grant money
- C. Support initiatives for improving interoperability in Michigan
- D. Continue system enhancements to expand and improve mobile radio coverage statewide
- E. Support 911 dispatch center consolidation initiatives
- F. Work with other counties to facilitate integration of subsystems to the MPSCS
- G. Support other forms of interoperability between the MPSCS and public safety agencies still utilizing radio systems on analog mode or other frequency bands

Interoperability Targets:

- 2011 - Facilitate the addition of several thousand new radios by agencies that were awarded Public Safety Interoperable Communications (PSIC) grant money beginning in the spring of 2008 with completion of all projects by 2011
- 2012 - Support completion of the MPSCS Urban Area Security Initiatives (UASI) for improving interoperability in southeast Michigan
- 2010-2014 - Support completion of 911 dispatch center consolidation projects for the Michigan State Police and local public safety agencies
- 2010 - Implement the MPSCS IP consoles in the Washtenaw County simulcast subsystem
- Ongoing - Support other forms of interoperability among the MPSCS users and public safety agencies still using radio systems on analog mode or other frequency bands



Appendix L

Statewide Radio Communication

Goal 2: Leading-edge Technology

The MPSCS has been recognized as one of the nation's premier public safety radio communication systems. That recognition is based, in part, on the system's adoption of state-of-the-art technology and its size, both in a covered and the large number of radios on the system.

The MPSCS uses the latest digital-trunked technology. The system is also compliant with the Association of Police Communications Officers (APCO) Project 25 standards. These standards establish a common baseline of equipment specifications allowing various manufacturers to design and supply compatible radio equipment. The standards are continuously evolving to meet the needs of public safety agencies.

Future MPSCS upgrades will include wireless broadband data capabilities, automatic person and vehicle locator capabilities, integration of Computer-Aided Dispatch (CAD) with existing mobile data clients and integration with Records Management Systems (RMS) offering many options for the first responder community. The future opportunities will rely heavily on expanded wireless data capabilities. This will significantly increase options by leveraging the existing shared-services model of the MPSCS. It will allow additional data features, including automated access to centralized databases.

Leading-Edge Technology Objectives:

- A. Upgrade the MPSCS to add wireless broadband data capabilities and integrate more advanced simulcast systems
- B. Implement 700 MHz radio sites to provide access to additional interoperable spectrum
- C. Incorporate lifecycle remediation of aging equipment
- D. Offer the latest proven technologies while maintaining compliance with established, recognized Project 25 standards to ensure the system never becomes technologically obsolete
- E. Incorporate vehicle and person locator technologies
- F. Expand data transmission and sharing capabilities

Leading-Edge Technology Targets:

- Ongoing - Maintain Project 25 compliance by incorporating new, tested standards such as the Inter Sub-System Interface (ISSI) component and upgrading the MPSCS system software to Version 7.11
- 2010-2013 - Expand data transmission and sharing capabilities utilizing MPSCS-delivered wireless broadband technology
- 2012 - Upgrade the MPSCS to add wireless broadband data capabilities and integrate more advanced simulcast systems
- 2011 - Pilot 700 MHz radio sites to provide access to additional interoperable spectrum
- 2012 - Implement 700MHz voice channels
- 2013 - Implement Automatic Vehicle Locator (AVL) and person locator technology

Goal 3: Restricted Funding Source to Address System Operations and System Upgrades

The State of Michigan is dedicated to keeping the MPSCS technology current. Given the appropriated general funding in the past decade, the MPSCS has been unable to make timely lifecycle remediation and system upgrades. Success at moving from the general fund to a restricted funding source will provide the MPSCS with the ability to restructure subscriber and other related fees. This will facilitate a shift of focus for the agencies, allowing them to pursue interoperability instead of addressing ongoing funding issues. This type of model, which is used elsewhere in the nation, should be leveraged in Michigan to protect the public safety community from shrinking general fund budgets.

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The system utilizes the Motorola ASTRO 25 Version 6.9 IP voice platform, a stepping-stone for future upgrades and enhancements. The system will adopt new technologies as standards develop and funding is available. For local public safety agencies, constructing a stand-alone system makes the agency responsible for upgrades, a process that can be costly and disruptive. By contrast, upgrades to the MPSCS infrastructure are installed at no charge to members; thus, users are provided the latest technology without the need to secure additional funds.

The MPSCS administrative, technical and engineering staff remains dedicated to maintaining the system at the proven, forward edge of technology.

Restricted Funding Source Objectives:

- A. Develop a sound, secure restricted-funding strategy for lifecycle maintenance and future upgrades
- B. Upgrade the MPSCS to Motorola's ASTRO 7.11 software platform
- C. Continue to upgrade infrastructure
- D. Expand the Interoperability Gateway Network to support a strategic technology reserve and enhance system monitoring

Restricted Funding Source Targets:

- 2010 - Expand the Interoperability Gateway Network to support both a strategic technology reserve and enhance system monitoring
- 2011 - Upgrade the MPSCS to Motorola's ASTRO 7.11 software platform
- 2011 - Develop and secure a funding strategy for future upgrades and lifecycle maintenance

Goal 4: Rebanding the MPSCS to New 800 MHz Spectrum

Several years ago, the Federal Communications Commission (FCC) responded to significant interference to public safety communications created by the introduction of cellular architecture systems into the commercial 800 MHz spectrum. After much public debate, the FCC issued an order for public safety agencies on the 800 MHz band, including the MPSCS, to relocate within the band. This relocation separated the frequencies used by public safety and cellular-type systems to eliminate the interference.

This rebanding process includes the retuning of every radio on the MPSCS and its entire 800 MHz infrastructure. Sprint Nextel, whose 800 MHz cellular telephone system is a principle source of the interference, agreed to fund the reconfiguration.

To successfully complete the rebanding and minimize disruption to the working public safety communication system, MPSCS staff developed a strategy for the rebanding implementation. At present, plans are largely complete and awaiting only final resolution of certain international border area agreements.

Rebanding Objectives:

- A. Complete the development and facilitate approval of a comprehensive rebanding plan for the MPSCS
- B. Improve ongoing inventory and administrative processes for the MPSCS to accommodate efficient rebanding efforts
- C. Eliminate interference to all public safety radios on the MPSCS through rebanding
- D. Ensure comparable operational characteristics after

Rebanding Targets

- 2011 - Complete development and facilitate approval of a comprehensive rebanding plan for the MPSCS
- 2011 - Eliminate interference to all public safety radios on the MPSCS through rebanding
- 2012 - Ensure comparable operational characteristics after completion of the rebanding

Appendix L

Statewide Radio Communication

process

MPSCS Planning

Provided below are examples of some short- and long-range plans that we have established. These plans focus on four areas:

- A. Carrying out and facilitating the distribution and sharing of information
- B. Providing ease of use and accessibility
- C. Ensuring security and protection of information
- D. Promoting the use of central/shared systems

Short-range Plans

- Add New Members - Identify MPSCS upgrade opportunities and provide additional subscriber IDs that will accommodate added radios leading to the expanded use of MPSCS for public safety interoperable communication needs.
- Complete Upgrades and Plan for Future Improvements - Many types of upgrades are necessary to keep the MPSCS a top-notch system. They include software upgrades, localized equipment changes and other changes necessitated by equipment obsolescence or failure. Equipment has a finite lifecycle. Aging equipment must be replaced to maintain a continued level of performance and obtain new capabilities and features implemented in the later design versions of the equipment. Some essential planned upgrades are:
 - ✓ Dispatching: The system has reached a limit in adding dispatch consoles in southeastern Michigan. A software upgrade will eliminate the need for existing legacy audio switches and create more dispatching capacity.
 - ✓ Monitoring and Alarm: The infrastructure monitoring and alarm function is rapidly becoming outdated, and support is becoming problematic.
 - ✓ System Diagnostics and Performance Metrics: The ability to conduct system diagnostics and performance metrics is limited. Adding software tools for predictive analytics will help the engineering team and Network Communications Center analyze the effects of changes to the system.
 - ✓ Cyber-Security Controls and Encryption: It is critical to add advanced networking technology and security controls and check points to the system. These additional controls will prevent access to the MPSCS and protect criminal justice information that is transmitted in voice and data form. These changes are required by the federal and state criminal justice information systems security policies. Monitor and Build System Capacity
- Monitor and Build System Capacity - As more public safety users join the MPSCS, system capacity must be monitored closely. When additional capacity is needed in certain areas, additional frequencies must be acquired. The MPSCS currently operates in the 800 MHz National Public Safety Planning Advisor Committee (NPSPAC) band, which is quickly becoming full in high population areas. The 700 MHz band will be available for use by public safety in the future. Both 800 MHz and 700 MHz may be used in a single radio by purchasing equipment capable of operating in both. The addition of the 700 MHz band increases system capacity in areas where the 800 MHz band is congested. Future technology improvements also will help address system capacity

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Appendix L

Statewide Radio Communication

- Provide Interoperability Options for Users and Non-users - Interoperability is a widespread priority in the United States, in large part because of acts of terrorism and natural disasters. It is a primary function of Michigan's communication system. At present, several interoperability options are available and in use with the MPSCS.
 - ✓ Access to FCC-designated mutual aid and tactical channels. These channels use analog modulation and are available to all user radios operating in the 800 MHz NPSPAC band, regardless of home system type.
 - ✓ With the 800 MHz rebanding presently underway, one challenge is maintaining interoperability with Canadian public safety agencies. Under the current system, U.S. and Canadian agencies using 800 MHz frequencies have access to a number of common channels. These common channels may be lost depending on the final border area frequency agreements established between the United States and Canada.
 - ✓ Non-MPSCS users on compatible 800 MHz digital trunking systems may have their radios programmed to operate on selected talk groups on the MPSCS system. Likewise, certain MPSCS users may have their radios programmed to operate on other compatible systems.
 - ✓ Non-MPSCS users using non-Project 25 standard systems or incompatible 800 MHz analog or digital home systems have access to the five common 800MHz mutual aid and tactical channels.
 - ✓ A cache of MPSCS radios is maintained. These radios may be used in situations where other agencies do not use radios compatible with either of the previous options.
 - ✓ Finally, the MPSCS allows patches (interconnection via an appropriate interface circuit) to other radio systems in specific situations. This is not an optimal solution as it creates additional loading impacts on the MPSCS resources and only operates effectively within the coverage area of the other agency's system.
- Dispatch Consolidation - The trend in the state is to consolidate 911 call-taking and dispatch operations into centralized facilities in cities and counties handling multiple agencies. This provides better coordination, improved facilities, reduced system requirements and the potential for staffing reductions and cost savings. The MPSCS members have consolidated dispatch facilities in a number of counties.

The MPSCS dispatch systems currently operate on a platform that is limited by its dated synchronous architecture. Because of the extraordinary growth of the MPSCS, certain areas of the state are near the maximum number of dispatch consoles that can be supported. The MPSCS is addressing these issues through dispatch consolidation and proposed system upgrades. As part of a MPSCS dispatch consolidation, new IP-based equipment will be used. This equipment has greater capacity and is far more efficient, allowing the MPSCS to accommodate its rapid system growth and dispatch needs.

Project 25 standards now include IP-based dispatch consoles as part of the CSSI console sub-system interface standard. This will allow the MPSCS to have greater flexibility in purchasing from multiple vendors, eventually resulting in greater savings through the competitive bid process.

Long-range Plans

- 700 MHz spectrum availability - The FCC has allocated 24 megahertz of spectrum to public safety in the 700 MHz band. There is an issue preventing MPSCS use of this spectrum at present. The first is the existence of several television stations on the spectrum in the southern portion of the Lower Peninsula. The stations must vacate the spectrum by February 2009.

The other issue is the FCC acceptance of the Michigan 700 MHz band plan. This plan details how the Michigan Regional Frequency Advisory Committee intends to allocate the frequencies in the 700 MHz public safety spectrum. The plan has been submitted to the FCC. Once the plan is accepted, the Regional Planning Committee will be authorized to

Statewide Radio Communication

review and approve license applications.

- The 700 MHz spectrum will provide additional narrowband voice channels. It will also allow aggregation of channels in a designated portion of the available 700 MHz spectrum into wideband channels. This portion of the spectrum is the subject of much current debate and could be affected by FCC rules covering the auction of commercial 700 MHz spectrum.

A proposal to create a private carrier-public safety partnership to build a broadband, nationwide system was created by the FCC and incorporated into the recent auction of the 700 MHz spectrum. The network would provide commercial service with public safety users having priority access. However, the spectrum allocated for that partnership did not receive the FCC's required minimum bid and was not sold. The FCC is re-evaluating the rules it created for that partnership and is expected to revise those rules and attempt another auction of the spectrum later this year. The auction of the commercial spectrum was congressionally mandated to begin in January 2008.

- 4.9 GHz – The 4.9 GHz spectrum is useful for short-distance, point-to-point microwave links as it is similar to microwave. It is relatively short range with moderate gain antenna systems and is useful for low-cost point-to-point connections or in creating data "hot spots" similar to the Worldwide Interoperability for Microwave Access (WiMAX) systems used with personal computers.

The relatively low cost of equipment for this purpose makes implementation attractive. However, the use of uncoordinated frequencies in this band may limit its usefulness because of interference from systems in adjacent areas using essentially the same frequencies. Some effort has been made to establish the Michigan Regional Planning Committee as a frequency coordinating body for this spectrum. At this time, however, there is no official authority in place to take on this responsibility.

New Technologies of the Future

Some new techniques and technologies that may be employed in the MPSCS in the future are:

Automatic Vehicle Locator (AVL): The AVL technology will allow public safety personnel and other government users of the MPSCS the ability to monitor and deploy the closest vehicle to an incident scene. This technology will also provide advanced tracking mechanisms for emergency personnel when outside their vehicles, while giving dispatchers the capability to track the first responder. This technology would use the MPSCS and its current coverage capabilities for service delivery.

Computer Aided Dispatch (CAD): Computer Aided Dispatch integrates the existing in-vehicle mobile data client with the dispatch center, allowing true end-to-end deployment of resources to any events using the data portion of the MPSCS. This will allow voice and data interactions from the vehicle to the dispatch center and provide the means for future integration technologies such as fishing/hunting license retrieval, geographic information systems (GIS), records management systems (RMS) and mug shot systems delivered to the vehicle or accessible from the vehicle.

Mesh Technology: Already used in some limited data-network applications, the wide-area application of mesh technology could reduce the requirements for additional base station sites while providing improved coverage, especially in rural locations. Mesh technology turns each user radio into a data repeater, which passes received data packets on to all other user radios within range. In turn, these radios pass data on to all radios within their range, and so on. Coverage is enhanced because each radio needs only to communicate with another nearby radio instead of a fixed-location station, which may be considerably farther away.

Software Defined Radio: Another technology now reaching maturity is the software-defined radio. This is essentially a computing platform married to broadband radio frequency components. The operating characteristics of the resulting radio are determined by the software running in the computing platform. The computing platform is used to generate various frequencies and waveforms to process the received signals. The radio can span significant portions of spectrum and operate in a variety of modes in analog or digital configurations. This flexibility will enable the radio to interface with a wide variety of services and provide a wide range of capabilities.

Statewide Radio Communication

Images: There is little doubt that public safety communication systems will soon carry image data. This may be relatively simple, fixed images such as driver's license images at first, but once the gate is opened, advanced high-resolution imaging and real-time video will surely follow. This will place additional bandwidth requirements on public safety systems.

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Appendix M | Cyber Security

Cyber Security



Trent Carpenter
Director,
DTMB Office
of Enterprise Security
State of Michigan CISO

OES Mission:
To protect the confidentiality, integrity and availability of State of Michigan information assets and promote a secure cyber Michigan for its citizens.

OES Vision:
Be recognized as a leading authority in the achievement of a secure cyber Michigan

Vision of Action

The 2010-2014 Cyber Security Strategic Plan integrates information security efforts with Michigan's statewide information and communications technology goals. It focuses on collaboration and innovation to provide a secure foundation that leverages technology for improved service.

We can be proud of the end product. It will carry the work of the Michigan Department of Technology, Management & Budget (DTMB) into the future and help us achieve our vision of being a recognized leader in best-practice security solutions that protect the privacy and information of Michigan's citizens.

This document outlines our philosophy for the future, which centers on collaboration, innovation and a commitment to excellence. We proactively protect the systems, networks and data entrusted to us. We accomplish this by deploying technology to our agency clients and developing partnerships with the larger security community, including federal, state and local experts and stakeholders.

Our vision of action ensures we can effectively handle recovery from all types of disasters. An all-hazards approach helps us effectively manage emergencies and keep the business of state government—critical ICT services to Michigan citizens—running smoothly. Finally, we are equipping state employees with training and a solid understanding of their roles and responsibilities in protecting citizen information and maintaining the highest ethical standards.

As we look forward, we realize change will continue. Our security approach enables us to adapt to change in the risk environment.

Guiding Principles

Our vision of being recognized leaders in providing best-practice security solutions is central to everyday operations in the Office of Enterprise Security (OES). Together with our partners, we work to ensure the confidentiality, integrity and availability of State of Michigan information assets.

Our paramount and daily mission is to successfully carry out security operations and oversight in concert with our Michigan Department of Technology, Management & Budget (DTMB) partner divisions and offices to maintain the highest achievable levels of protection of all data resources and reduce the overall threats to critical computer, technology and communications services.

Collaboration as the Centerpiece

Protecting Michigan's critical government information has become an ongoing global challenge. Today's cyber threats against critical infrastructure do not require physical access to targets to inflict great harm. In fact, persons bent on destruction could potentially carry out harmful attacks from the comfort of their homes—anonously and thousands of miles away.

To provide the privacy and security citizens rightfully expect, DTMB has established public and private sector partnerships to help achieve ongoing protections. These local and national partners help us ensure the continued availability of e-government services in a safe, secure manner. Virtually every function of Michigan government depends on our reliable network infrastructure, whether working with local governments in communities across the state or communicating with federal partners.

As we move forward, partnerships will continue to grow and develop added value. Some examples of key partnerships:

- **Multi-State Information Sharing and Analysis Center (MS-ISAC):** DTMB joins counterparts in the other 49 states and Washington, D.C., in this organization that provides real-time information on threats, vulnerabilities and remediation strategies to cyber incidents.
- **Michigan Information Sharing and Analysis Center (MI-ISAC):** The Office of Enterprise Security and the Michigan Chief Information Security Officer (CISO) lead this organization. Rolling out the benefits of the MS-ISAC to Michigan's local governments establishes two-way communication and provides essential coordination for cyber emergencies, virus attacks and other serious cyber situations.

Cyber Security

- Michigan Information Privacy Protection Council: With representation from all state agencies, this group reviews, develops and recommends information security and privacy protection policies and procedures used across the state.
- National Association of State Chief Information Officers (NASCIO) Security and Privacy Committee: This group coordinates public policy and develops research documents in conjunction with states and the federal government.
- Federal Department of Homeland Security (DHS) committees and programs: NASCIO is represented on the Information Technology Government Coordinating Council in Washington, D.C. by the Michigan CISO. Through joint development of documents like the National Infrastructure Protection Plan's IT Sector Plan, a roadmap has been established to protect the nation's critical infrastructure in all sectors – including cyber. This document provides an essential list of future activities, and this relationship continues to lead to new grants, programs and opportunities to protect Michigan families.
- Michigan InfraGard: A close working relationship with the private sector is essential to improving the state's ongoing cyber security efforts. DTMB staff members have participated in many InfraGard programs, conferences and outreach to schools.
- Pandemic Influenza Coordinating Committee: DTMB is actively involved in all aspects of Michigan's Pandemic Influenza Coordinating Committee. Working with public and private sector partners around the state and country, this committee is outlining technology's vital role in planning for affected emergency areas such as transportation, border, human health, animal health, public safety and individual, family and community.

Information Security - A Key Part of Business Success

Delivering secure, efficient and effective technology services

Information security is an integral part of our client's success. Whether it's the implementation of a new technology or a legacy solution on which our partners depend, understanding the associated cyber threats and exposures is critical to making sound business decisions. As such, it is important that we partner with our clients to ensure they have the cyber security information and understanding they need to make these decisions.

The Office of Enterprise Security is ensuring that its efforts to assist agencies in strategic and tactical security planning are effective and efficient. We work with client agencies to ensure they have the security processes and metrics they need to be successful. Efforts to refine and automate these processes and metrics will provide guidance to our business partners during the development and implementation of new technologies.

This collaboration enables the effective management of cyber risks and ultimately improves the protection of our state's information assets.

Priorities:

- Collaborate with business partners to improve the efficiency and effectiveness of information security planning, including project specific assessments as well as enterprise wide agency security plans. (2010 -ongoing)
- Work with clients to ensure security metrics are effective and appropriately communicate their cyber security posture. (2010)
- Develop new methods to automate and standardize agency security metrics to improve the efficiency of collecting and communicating security information. (2011)
- Assist client agencies with aligning their business continuity plans and DTMB's disaster recovery services to facilitate a coordinated effort to ensure critical business services remain operational. (2011)
- In coordination with agency Information Privacy Protection Officers and the Michigan Information Privacy Protection Council, provide support to agencies in developing strategies to effectively protect the privacy of citizen data. (2011 – ongoing)



Homeland
Security



Developing Strong
Partnerships

DTMB, in conjunction with the U.S. Department of Homeland Security (DHS), improved the protection of computer systems and networks in state government.

Through the sharing of federally developed technology called Einstein, Michigan government has the ultimate protection when it comes to preventing attacks against government computer systems. Michigan is the first state to utilize the technology from DHS. Einstein puts Michigan in a better position to identify and resolve a greater range of threats to its computer systems and networks.

Cyber Security

“Whether it’s the overload of spam, the never-ending string of viruses, or malicious attacks against our systems and web pages, we all face these cyber threats together. And it’s that word “together” that is so important. Through collaboration and the sharing of information, we will be better equipped to handle the challenges we all encounter in the security realm.”

Ken Theis
Chief Information Officer
State of Michigan



Strengthening Operational Security

Strengthening operations and security through statewide solutions and universal standards

A recent study by a local consulting firm showed that Michigan citizens fear identity theft more than they fear the loss of a job, home foreclosure, or a terrorist attack. This study emphasizes the importance of cyber security to our citizens. This is one of the many reasons we have made cyber protection our top priority as we move forward with infrastructure security enhancements.

By focusing on a multi-layered security strategy, Michigan currently mitigates most risks associated with offering services over the Internet. These efforts have already provided many positive benefits to both government operations and the public. Through effective mitigation strategies, there has been a reduction in the hardware and software needed to operate e-mail systems, bandwidth available for state operations has been increased, and the numbers of field service calls to remedy malware compromises have been reduced. All of this contributes to reducing costs and more efficiently using staff resources.

We continue our efforts to reduce the likelihood that a cyber attack can affect State of Michigan IT resources. Our goal is to make improvements in our defense-in-depth strategy by layering security protection throughout our network and, whenever possible, focus on proactively reducing cyber threats before they have a chance to impact Michigan.

Priorities:

- Review Michigan's Information Technology Emergency Management Plan to ensure it is up-to-date and accurately reflects current organization and threat environments. (2011)
- Assess current operational security systems to ensure technologies and deployments are effective, efficient and up-to-date (e.g. IPS/IDS, ADS, content filtering, etc...). (2011)
- Work with DTMB partner divisions and offices to develop and enhance processes that reduce risks associated with providing IT services. (2011 and ongoing)
- Improve protection of Michigan's informational assets by strengthening partnerships with federal, state, local and private organizations to minimize the likelihood and impact of information security incidents.
- Enhance operational security activities to better prevent and respond to cyber security issues by: (2011 and ongoing)
 - expanding operational security metrics to improve situational awareness;
 - developing automated processes where feasible;
 - improving the tracking and reporting of cyber security incidents.

Awareness and Outreach

Accelerating partnerships across and beyond state government

Often when thinking of awareness, people associate it with “training.” However, while training is a more formal process to teach and build specific skills for job performance, awareness is the process of providing a broad audience with vital information needed to ensure a general understanding of security and the ability to focus on addressing the issues and situations.

A part of our mission is to facilitate security awareness and to develop an awareness and outreach program that:

- a. encourages employees and trusted partners to have a security-conscious mindset,
- b. cultivates a security-aware culture by facilitating awareness activities that assist our employees and trusted partners in recognizing security concerns and responding appropriately,
- c. compliments the State's policy and technology initiatives and informs employees and trusted partners of safeguards and security responsibilities,
- d. collaborate and partner with local government entities, schools and trusted partners to extend security awareness services beyond conventional limits,

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By focusing on enhanced communication and user-friendly resources by providing content rich security awareness information components, we will continue to seek out innovative approaches to serve our customers, both internal and external, in the best ways possible.

Priorities:

- Develop and implement a security awareness program that compliments the State's policy and technology initiatives. (2011)
- Include awareness components for both customer agencies and internal DTMB partners. (2011)
- Collaborate with our DTMB partners to better communicate cyber security awareness to our customer agencies. (2011)
- Assist agency Information Privacy Protection Officers and the Michigan Information Privacy Protection Council in the development of communication and awareness strategies regarding implementation of data privacy protection practices. (2011 and ongoing)

Transforming Information Security

Driving innovation and technology to transform Michigan

Michigan's information technology environment is constantly evolving and expanding. Our client partners and citizens continue to increase their use and dependency on technology. At the same time, cyber threats and challenges are also expanding. This constant evolution and expansion is difficult to secure with the limited resources available.

To deal with these challenges, we need to transform how we protect our information assets. We must work smarter and leverage technology to better utilize the resources we have. This means developing solutions that minimize our threat profile, while still enabling our clients to meet their business needs, such as leveraging thin technology to limit exposure of sensitive information at remote hosts.

It also means expanding our use of automated security technologies to improve the effectiveness and efficiency of cyber security resources. This includes expanding the use of intrusion prevention systems (IPS) and data loss prevention (DLP) devices to automatically block security threats, as well as expanding our security incident and event management (SIEM) solution to incorporate more platforms to improve correlation of cyber security events. We will also leverage automated tools to configure, manage and report compliancy with federal, state, and industry requirements.

Priorities:

- Expand use of automated security technologies (e.g. IPS, DLP, Content Filtering, etc.) to improve the effectiveness and efficiency of cyber security protections. (2011)
- Automate the configuration and reporting of compliance with federal, state, and industry requirements. (2011 and 2012)
- Expand security incident and event manage solution to incorporate additional platforms to improve correlation of cyber security events. (2011 and 2012)
- Implement enterprise architecture solutions that minimize security risks and costs to secure (e.g. thin technology to minimize remote client security risks). (2013)

Securely Moving Forward

Provide exceptional secure services to Michigan citizens and businesses anytime, anywhere

The Internet has changed everything, including government opportunities to proactively serve the public in new and innovative ways. Not only have Michigan citizens come to expect secure e-government transactions and ease of use on a 7x24x365 basis, the public is now calling for a new generation of "Web 2.0" transactions with a higher level of collaboration. From MySpace to Google to YouTube to Facebook, Michigan is forging ahead to provide new services and communication techniques that utilize evolving technologies.



Secure Transactions for our Citizens

Michigan government continues compliance with the Payment Card Industry's (PCI) strict standards for ensuring that cardholder information is protected and secure. The PCI Data Security Standards (DSS) apply to financial institutions, Internet vendors and retail merchants and detail the security measures and auditing procedures required to protect private cardholder information during payment card transactions. All major card brands require these Data Security Standards to assure the protection of cardholder data gathered during transactions. Michigan is one of the few states to have PCI compliance for all state credit card applications.

Michigan Cyber Security
michigan.gov/cybersecurity

In order to continue educating the public regarding cyber threats, identity theft, and a host of other Internet problems, we have developed an award-winning Web site on cyber security.

The site is constantly updated and improved to provide relevant facts, figures, training and related information to protect all Michigan citizens. Whether individuals, businesses, schools or families go online, we want them to be safe.

Cyber Security

Michigan Information Privacy Protection Council:
Data Privacy Protection in the Forefront

Michigan's newly formed Information Privacy Protection Council leads the way in developing statewide strategies to protect citizen data.

The Michigan Information Privacy Protection Council was formed by Executive Order 2009-18, which established a cross-agency body to address the privacy protection needs of citizen data handled by the state. The council acts in an advisory capacity to the Governor on matters related to coordinating information privacy protection measures across all executive agencies.

Collaboration with Local Governments

DTMB performed cyber security vulnerability assessments of information technology systems used by local government, giving local decision makers the information they needed to protect their systems. The information gathered during the assessments enhanced local preparedness and allowed for the prioritization of resources to execute protective measures. Many local units of government do not have the resources to implement computer security programs on their own.

Two essential keys to success ensure we move forward in a secure manner--one that addresses the serious challenges that accompany these new technologies while addressing traditional and evolving cyber threats posed by the Internet.

Proactively responding to cyber security incidents with partners such as MS-ISAC and the Department of Homeland Security's US-CERT has greatly enhanced our ability to identify and respond to threats. Utilizing a notification network to quickly and effectively disseminate warnings of potential security issues, we continue with our efforts to encourage state, local and university participation in MI-ISAC activities.

The development and provision of timely metrics related to cyber security incidents will assist our partners in identifying risks and making the business decisions necessary to enhance their security posture and continually improve the services they provide, all the while providing the protection required to maintain public confidence.

Priorities:

- Collaborate with our customers and department partners to provide better and more secure services to Michigan's citizens.
- Develop communication strategies to share knowledge and resources necessary to efficiently address security considerations during business development.
- Continue to assist in the development of cyber security solutions (i.e. cloud computing, virtualization, thin client, mobility technology growth) to enable the secure adoption of new technologies in state government.
- Continue to update and refine security policies to adapt to cyber security challenges and evolving technologies.

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Appendix N | Emergency Management

Emergency Management



Purpose

The Emergency Management Plan (EMP) of the Michigan Department of Technology, Management & Budget (DTMB) establishes policies, procedures and an organizational structure for responding to emergencies of a magnitude to cause a significant disruption to the State of Michigan. The plan describes the roles and responsibilities of DTMB during emergency situations and meets the requirements and objectives set forth in the Emergency Management Act (Act 390, Public Acts of 1976, as amended), the State of Michigan's Emergency Management Plan and U.S. Homeland Security Presidential Directive 5.

In addition, the plan supplements DTMB's administrative policies and procedures. When the plan is activated, it sets forth the authority to direct operations and staff assignments, procure and allocate resources, and take measures to restore normal services and operations.

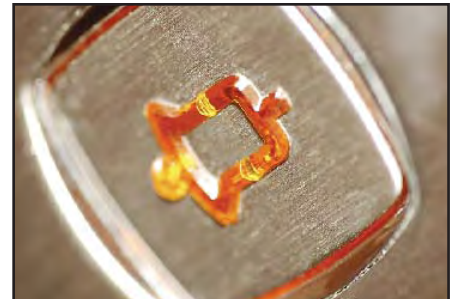
This plan does not supersede or replace procedures for safety, hazardous materials response or other procedures already in place within the state. It supplements those procedures with a temporary crisis management structure that provides for the immediate focus of management on response operations and the early transition to recovery operations.

Nothing in this plan shall be construed in a manner that limits the use of good judgment and common sense in matters not foreseen or covered by the elements of the plan.

Assumptions

The DTMB Emergency Management Plan assumes the following:

- An emergency or a disaster may occur at any time of the day or night, weekend or holiday, with little or no warning.
- Disasters may be statewide or more limited in scope.
- Emergencies or disasters can cause human suffering, injury, death, property damage, environmental degradation, loss of essential services, economic hardship and disruption to state as well as other governmental entities.
- The successful response to an emergency or disaster is not predictable; therefore, published operational plans such as this should serve only as a guide and a checklist. It may require modification to meet the requirements of the emergency.
- Demand for timely information may be overwhelming. Sufficient staff must be identified, provided and well trained to meet this demand.
- Due to the dynamic nature of emergency planning, this plan must continue to evolve to keep pace with changes in DTMB.



Emergency Operations

General

The Emergency Management Plan is based on the premise that emergency functions for groups within DTMB will generally parallel their normal day-to-day functions. To the extent possible, the same personnel and material resources will be employed in both cases. In large-scale disasters, however, personnel may be required to draw on their basic personal strengths and use them in areas of greatest need.

In the event of an emergency, most operational groups in DTMB will have emergency functions in addition to their normal daily duties. Each operational group is responsible for developing and maintaining its own emergency operation plans. Those routine functions that do not contribute directly to the emergency operation may be suspended during any emergency, and efforts that

Emergency Management

would normally be required of those functions will be redirected to accomplish the emergency tasks of other departments involved in emergency operations.

Direction and Control

All emergency operations will be directed by the DTMB director or designee. In the absence of the DTMB director or designee, the director of the Office of Enterprise Security will assume control of the emergency response.

During an emergency, the DTMB director and the DTMB crisis management team will meet on an ongoing basis regarding policies and legal concerns in order to determine any actions required beyond standard emergency response protocols.

Direct operational control of a major emergency is the responsibility of the Emergency Coordination Center (ECC).

Levels of Emergencies

Emergency conditions vary with each incident and activation. As a guide, the three levels of emergency follow:

- Level 1 – An incident with limited impact that does not affect the overall functional capability of DTMB or the state. Planning and response are carried out at a limited local level. The Emergency Management Plan would not be activated.
- Level 2 – An incident that significantly disrupts one or more operations of DTMB or its customers. Multiple DTMB resources are involved. The Emergency Management Plan would be activated to the extent necessary.
- Level 3 – Disaster conditions in which DTMB must activate the full Emergency Coordination Center to address immediate emergency response. Emergency conditions are widespread and DTMB must be self-sufficient for a period of hours to several days.
- Generally, the ECC is activated under Level 2 and 3 emergencies.

Emergency Coordination Center

In accordance with standard emergency management system planning, DTMB has established the Emergency Coordination Center. The ECC will:

- provide a central point where:
 - information pertaining to an incident is received and analyzed.
 - verification of information can be made.
 - incident information is immediately available.
 - all resource status information can be tracked.
 - incident strategies are implemented.
 - critical resources are assigned to tactical operations.
- provide for the efficient and effective use of all modes of communication available for the incident.
- enhance coordination among offices and divisions involved in the incident.
- provide for sustaining operations during extended periods of time.
- establish continuity of the response efforts through round-the-clock staffing at a centralized location. This allows a systematic means to conduct planning and tactical meetings and inform members of the new elements of the incident action plan through briefings when shifts change.

Location

The primary ECC is located in the Secondary Complex. The backup ECC is located in downtown Lansing. The incident commander determines which location to use based on the nature of the emergency.



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Operational Readiness

The Office of Enterprise Security is responsible for the operational readiness of the primary and secondary ECC locations. This includes maintaining operational capabilities and the exercise of functions at the two locations.

Staffing

The staffing needs of the ECC will be determined by the nature of the event and the duration of response and recovery activities. Each DTMB office and division participating in the ECC function will be responsible for providing the staffing necessary to sustain ECC operations for the duration of their participation.

The facilities used for the ECC are either conference rooms or training rooms but not dedicated ECC facilities. The ECC will be continuously maintained in a state of readiness for conversion and activation and will serve as the centralized location to gather, check in and receive assigned roles in the ECC. Response activities and work assignments will be planned, coordinated and delegated from the ECC.

A determination to activate the ECC at full or partial levels will be made by the emergency management coordinator in consultation with the director of DTMB or his or her designee.

Once the ECC is activated, the DTMB director and the emergency management coordinator will appoint an incident commander (IC) from a predetermined list. Depending on the character, scope and magnitude of the emergency incident, the incident commander will mobilize appropriate ECC participants.

ECC members will receive an emergency group page or text message or be notified individually, depending on the scope of the emergency. If notified electronically, ECC members will contact the DTMB Service Management Center at (517) 322-6611 or toll free at (877) 766-4348 or by e-mail at DIT-SMC@michigan.gov. Members should provide their estimated time of arrival and notify their designated backup staff as needed. The IC or his or her backup will coordinate the emergency response from the ECC.

Access

Access to the ECC is restricted to authorized emergency management personnel. All others must obtain approval for admission from the incident commander.

All personnel working in the ECC are to sign in and out on the ECC roster, which will be located on a table at the door.

E-Team

The ECC will utilize E-Team software to track incidents. E-Team is an off-the-shelf Web-based critical incident management software system used by the State Emergency Operations Center and the DTMB Emergency Coordination Center to track the status of an incident. E-Team is designed to manage emergencies and events. It includes the following tools:

- Incident reporting and tracking
- Procedures and checklists
- Situation reporting
- Intelligence gathering and dissemination
- Resource and asset management
- Tip reporting
- Action planning

- Duty and call logs
- Critical infrastructure reporting
- Organization charts



Emergency Management

- Hospital and shelter status
- Consequence Assessment Tool Set hazard modeling interface
- Personnel management
- Real-time messaging and chat capabilities

Communication

During and after emergencies, the ECC will be the central point for both internal and external communications.

Emergency actions to be taken and other vital information will be communicated to employees through phones, cell phones, messengers (as appropriate), e-mail and Web sites.

During and after a disaster, outgoing phone calls must be restricted to emergency calls to outlying sites and to emergency service providers. Employees must refrain from tying up telephone lines and impeding necessary communications.

In the event of a declared emergency, communication to employees at home and at work will be handled as follows:

- After hours, a phone-tree system will be used by offices and divisions to communicate with employees. It is the responsibility of each office or division to develop its own system that outlines how, and in what order, calls are made. This information will be placed in the office/division emergency operation plan.
- The ECC will maintain an employee emergency hotline that will be maintained by the public information officer (PIO). The hotline number is 517.241.4560 or 877.766.4348, option 6. During an emergency, important messages will be placed on this hotline.
- The ECC will also use the DTMB intranet (<http://connect.michigan.gov/portal/site/mdit>) and the DTMB Internet site (<http://www.michigan.gov/dit>) to communicate to employees and customers.
- The ECC will hold regular status conference calls to update management on the current status of the emergency.



Media Calls

During an emergency, the media may request information from department staff. These contacts may be in the form of general inquiries or requests for sensitive information. Because these contacts are varied and often involve administrative decision making, it is essential that they are directed to the PIO immediately. While DTMB must strive to be responsive in emergency situations, it is also our obligation to collect and disseminate accurate information. A centralized, coordinated approach is required to accomplish this goal.



Emergency Management

Organization and Assignment of Emergency Response

All incidents, no matter the size, require a coordinated effort to ensure an effective response and the efficient, safe use of resources. The DTMB uses the incident command system (ICS) as the basis for its ECC operations. ICS is designed specifically to allow emergency responders to adopt an integrated organization without being hindered by jurisdictional boundaries.

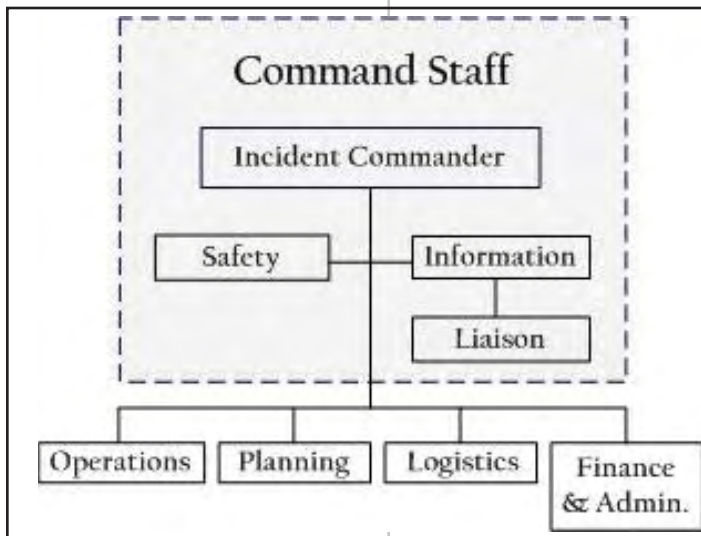
What is an ICS?

The ICS model is a major component of the National Incident Management System (NIMS). The NIMS was created in February 2003 as a result of Homeland Security Presidential Directive 5.

In the early 1970s, the ICS model was developed as a way to manage emergency response to rapidly moving wildfires. It addresses the following problems:

- Too many people reporting to one supervisor
- Different emergency response organizational structures
- Lack of reliable incident information
- Inadequate and incompatible communications
- Lack of structure for coordinated planning among agencies
- Unclear lines of authority
- Terminology differences among agencies
- Unclear or unspecified incident objectives

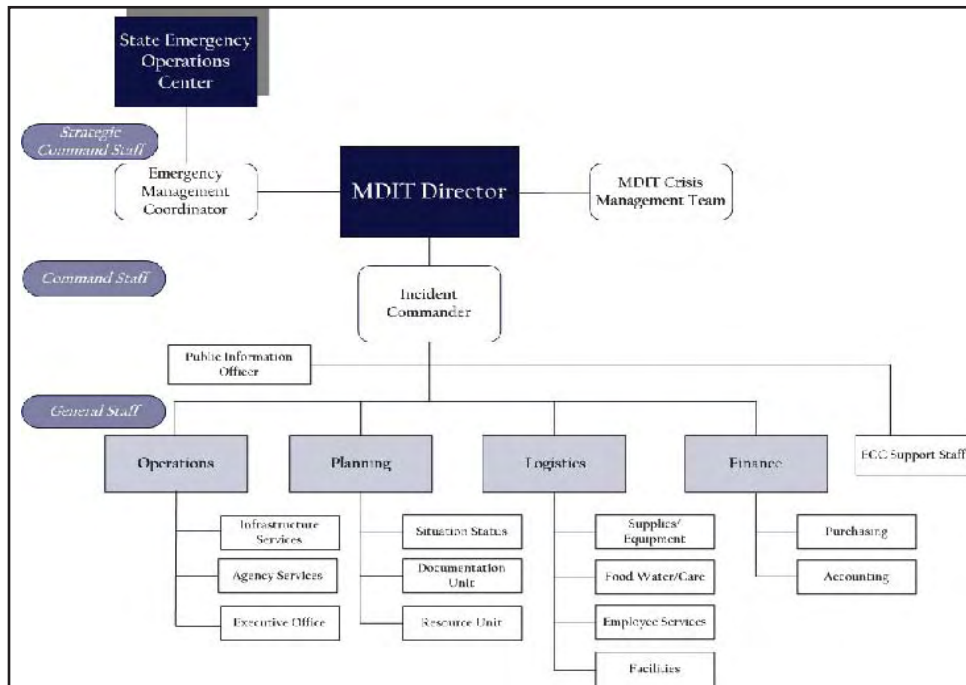
An ICS enables integrated communication and planning by establishing a manageable span of control. An ICS divides an emergency response into five manageable functions essential for emergency response operations: command, operations, planning, logistics and finance and administration. The illustration at the left shows a typical ICS structure.



The following is a summary of the duties associated with each ICS function.

- The incident commander is responsible for all aspects of the response, including developing incident objectives and managing all incident operations.
- The command staff is responsible for public affairs, health and safety and liaison activities within the incident command structure. The IC remains responsible for these activities or may assign individuals to carry out these responsibilities and report directly to the IC.
- The public information officer develops and releases information about the incident to news media, incident personnel and other appropriate agencies and organizations.
- The liaison officer serves as the point of contact for assisting and coordinating activities between the IC and various agencies and groups.
- The safety officer develops and recommends measures to the incident commander for assuring personnel health and safety and for assessing and anticipating hazardous and unsafe situations. The safety officer also develops the site safety plan, reviews the incident action plan for safety implications and provides timely, complete, specific and accurate assessment of hazards and required controls.
- The general staff includes operations, planning, logistics and finance and administrative responsibilities. These responsibilities remain with the IC until they are assigned to another individual. When these responsibilities are established as separate functions under the IC, they are managed by a section chief and can be supported by other functional units.
- The operations staff is responsible for all operations directly applicable to the primary mission of the response.
- The planning staff is responsible for collecting, evaluating and disseminating the tactical information related to the incident and for preparing and documenting incident action plans.

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- The logistics staff provides facilities, services and materials for incident responses.
- The finance and administrative staff is responsible for all financial, administrative and cost-analysis aspects of the incident.

DTMB's Implementation of ICS

DTMB uses a modified ICS organization that is called to duty during times of emergency, when normal operations are not sufficient to meet the immediate or overwhelming needs that occur. The organization will be staffed by representatives from each bureau within DTMB. DTMB implements three functions within its emergency management organization:

- Strategic Command
- Command
- General Staff

The relationship among the teams is shown in the graphic below:



DTMB Emergency Management Organization

Details of the major elements outlined in the chart at the top of the page are discussed in the following sections. More information and a complete checklist by organizational role is available [online](#).

State Emergency Operations Center (SEOC)

The State Emergency Operations Center is the primary center for coordination of state government response and recovery operations in times of disaster or emergency. The SEOC is maintained and operated by the Michigan State Police Emergency Management Division. The DTMB emergency management coordinator is DTMB's representative to the SEOC.

DTMB Emergency Coordination Center

The ECC is the site established by DTMB where agency officials gather to provide logistical support, policy direction and technical assistance to the emergency management coordinator in the SEOC and to strategically plan and implement the disaster response and recovery activities.

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Strategic Command

The strategic command function is made up of the DTMB director, the emergency management coordinator and the crisis management team. This group:

- provides strategic direction to the incident commander.
- sets priorities in the recovery.
- approves major expenditure of emergency funds and the acquisition of resources.
- crafts DTMB's communication strategy and authorizes media releases.

DTMB Director

The DTMB director is the executive-level leader of DTMB's response to an emergency or disaster for the department. The DTMB director provides overall direction to the emergency management organization and represents the department to key constituents.

Crisis Management Team

The crisis management team is a group of DTMB executives appointed by the DTMB director. This team evaluates information from various sources during the event and advises the DTMB director on appropriate actions requiring his or her decision. The crisis management team is also responsible for the review and approval of the emergency management plan.

Emergency Management Coordinator (EMC)

The emergency management coordinator acts for and at the direction of the DTMB director when the SEOC is activated or a state of disaster or emergency has been declared. The EMC is the liaison between DTMB and the Michigan State Police Emergency Management Division in all emergency management matters. The coordinator also is responsible for preparing and continuously updating an annex to the Michigan Emergency Management Plan, providing for the delivery of emergency management activities by the department.

The EMC works in cooperation with the director, deputy director and all division directors in DTMB to mitigate, prepare for, respond to and recover from emergencies and disasters affecting the programs and responsibilities of the department. The EMC is responsible for developing and implementing strategies that encompass planning, training and exercises that maintain a state of readiness within DTMB. Specific responsibilities of the EMC include:

- Mitigation:
 - Identifying and developing opportunities to lessen the impact of emergencies or disasters on people, property, natural resources, constituent and government services
- Preparedness:
 - Writing emergency management plans
 - Training appropriate staff
 - Designing and conducting exercises of plans
 - Coordinating preparedness activities
 - Conducting relevant outreach activities on behalf of DTMB
- Response:
 - Providing analysis and recommendations in emergency and disaster situations
 - Acting as a liaison to local, state and federal government agencies
 - Coordinating DTMB response activities when deemed appropriate by the director

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- Recovery:
 - Coordinating DTMB recovery activities

Command Staff

The command staff is made up of the incident commander and the public information officer.

This group handles the overall operational management of the incident, including:

- command staff assignments required to support the command function.
- establishment of additional command staff positions not specifically identified in the general staff functional elements.
- establishing command.
- ensuring responder safety.
- assessing incident priorities.
- determining operational objectives.
- developing and implementing the incident action plan.
- developing an appropriate organizational structure.
- maintaining a manageable span of control.
- managing incident resources.
- coordinating overall emergency activities.
- authorizing the release of information to the media.
- Tracking costs



Incident Commander (IC)

The incident commander leads the ECC and has the following responsibilities during an emergency event:

- Establishes incident management objectives and strategies
- Develops incident objectives on which subsequent incident action planning will be based
- Ensures all functional area activities are directed toward accomplishment of the strategy
 - Modifies procedures or organizational structure to:
 - Align, as necessary, with the operating characteristics of their specific jurisdictions
 - Accomplish the mission in the context of a particular hazard scenario
- Approves the incident action plan
- Directs the identification and location of facilities based on the requirements of the situation
- Approves all requests pertaining to ordering and releasing incident resources
- Expands the organization from the top down as incident complexity increases and functional responsibilities are delegated
- Expands the number of management positions concurrently with structural expansion to address the requirements of the incident adequately

This position is designated from a predetermined list of incident commanders by the DTMB director and the emergency management coordinator when the Emergency Coordination Center is activated.

Public Information Officer (PIO)

The public information officer:

- maintains contact with the news media.
- provides news releases and other information as approved by the DTMB director.

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- ensures that official statements are issued only by those administrators authorized to issue such statements
- responds to inquiries from the public for information relative to the disaster
- disseminates information to DTMB staff and activates staff emergency hotline

During an emergency the position of public information officer is vital for communicating with staff, other agency PIOs and the governor's communications staff to ensure consistency of message.

ECC General Staff



The ECC general staff is a group of incident management personnel that is:

- organized according to function.
- reports to the incident commander.
- consists of the leaders of the operations, logistics, planning and finance teams.

Emergency Coordination Support Staff

The ECC support staff are assigned to the incident commander. Their primary responsibilities include setting up the ECC. They arrange for ECC staff support and serve as the primary internal staff contact for the ECC. They also monitor internal ECC operations to ensure the completion of transfer and exchange of information between teams.

ECC Operations Team

During an emergency event, the incident commander will build an operations team of staff members from DTMB.

The operations team is responsible for the overall coordination and efficient use of resources in emergency response. Team members are responsible for prioritizing operations and managing operation response as determined by the office/division emergency operations plan.

Planning Team. The planning team has three primary units. It may include a number of technical specialists who will assist in evaluating the situation and try to anticipate the need for additional personnel and equipment.

Situation Status Unit. This unit:

- receives and maintains updated field reconnaissance information on the status of all field operations, damage assessment, numbers of people injured or evacuated and outside events – including weather information – that may affect field operations. This information is posted on maps and status boards in the Emergency Coordination Center.
- identifies inaccuracies and inconsistencies in reports and clarifies miscommunications.
- provides ongoing status reports of the emergency and the resources assigned to it.
- maintains the ECC duty log using the E-Team software.

Documentation Unit. The documentation unit:

- maintains accurate and complete incident files, including a complete record of the major steps taken to resolve the incident.
- provides duplication services to incident personnel.
- files, maintains and stores incident files for legal, analytical and historical purposes
- prepares the incident action plan.
- maintains many of the files and records that are developed as part of the overall IAP

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and planning function.

Resource Unit. The resource unit:

- makes certain assigned personnel and other resources have checked in at the incident.
- has a system to track the location and status of all assigned resources and personnel.
- maintains a master list of all resources committed to incident operations.
- categorizes resources by capability and capacity across disciplines.
- tracks the status of resources to effectively manage their use.

Logistics Team

The logistics team meets all support needs for the incident. This team:

- orders resources using procurement authorities from off-incident locations.
- provides facilities, transportation, supplies, equipment maintenance and fueling, food service, communications and medical services for incident personnel.

Supplies/Equipment

This position is responsible for procuring and distributing equipment and supplies requested by the incident commander or operations team lead that are required to support emergency response and recovery activities. He or she coordinates record keeping with the finance team and works with the planning team on budgeting and funding authorization.

Food Water/Care

This position is responsible for providing rest areas and sleeping facilities, as needed, and arranging meals for ECC staff. He or she is responsible for obtaining and allocating food and water supplies to support emergency staff needs.

Employee Services

This team determines the need for and maintains records on the status of DTMB employees. They provide personnel support by filling staffing needs using newly hired employees, volunteers and temporary services as necessary. They maintain personnel records and handle claims and other personnel matters and issues. They forward all records of hours worked to accounting for inclusion in the disaster expense report. They coordinate emergency services, mental health care and crisis counseling.

Facilities

Facilities receives reports from various organizations in the field regarding the status of DTMB buildings and properties. They coordinate and direct emergency repair and restoration operations for all utilities and facilities. They check all utilities for safety and operational status and coordinate with public utilities as needed. They assist with emergency power and support for all field operations and the ECC.

The facilities team coordinates the inspection of all DTMB buildings or leased space with DTMB staff. They receive preliminary safety reports and provide information to the situation status unit. They continue to manage field inspections and assist in identifying priority projects. They provide for re-occupancy of buildings and notify the recovery team of usable facilities.

They receive and evaluate initial damage reports from DMB. They maintain complete records and files of all damage by building and provide current and ongoing damage estimates and related information to the situation status unit on an ongoing basis.

The facilities team sets up and manages emergency maintenance, repair and construction projects as authorized by the DTMB crisis management team. They develop a repair and construction plan by priority, keeping documentation for disaster program requirements.

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Finance Team

The Finance Team manages and supports accounting, disaster statistics and purchasing. The team is responsible for all financial information, accounting and immediate financial support for resources and emergency payables. It provides reports to the incident commander and may continue operations and track costs during long-term recovery. The Finance Team documents expenditures, purchase authorizations, damage to property, personnel time, equipment usage, injury claims and vendor contracting.

The team is responsible for timekeeping and cost analysis, tracking costs throughout the incident and overall fiscal guidance. The team reviews the DTMB budget and identifies existing sources of funding for disaster expenditures. The team forecasts expenses for emergency and disaster operations and provides routine updates on total disaster expenditures.

Purchasing

Purchasing is responsible for processing the purchase orders and other DTMB purchasing documentation to support the DTMB's emergency response and for maintaining appropriate files and source documents for supporting disaster recovery applications.

Accounting

This team manages the accounting, auditing and documentation of all emergency expenditures including labor, benefits, purchases and contracts. They set up and manage the emergency accounting system. They compile damage cost estimates and arrange for sources of emergency funding. They maintain a central documentation file. They provide auditing of all expenditures to verify budget accounts, invoices and documentation. They also receive invoices and process authorizations for payment.

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Information about Michigan's ICT Future is in development.

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